APR 13 1920

VOLUME 38—N. S. VOL. 1 NUMBER 4

ARCHIVES
OF
DERMATOLOGY AND SYPHILOLOGY

(Succeeding the Journal of Cutaneous Diseases)

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APRIL, 1920

PUBLISHED MONTHLY BY AMERICAN MEDICAL ASSOCIATION, 535 NORTH DEARBORN STREET, CHICAGO, ILLINOIS. ANNUAL SUBSCRIPTION, $5.00

Entered as Second Class Matter, October 30, 1917, at the Postoffice at Chicago, Illinois, Under Act of Congress of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized on July 23, 1918.

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Archives of Dermatology and Syphilology

VOLUME 38—N. S. VOL. 1 APRIL, 1920 NUMBER 4

CULTURAL STUDIES ON AN INFECTION OF THE SKIN BY ENDOMYCES ALBICANS

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URBANA, ILL.

Infections by organisms other than the bacteria are by no means uncommon. In many cases, however, no careful study has been made of the infecting agent, and consequently the details of the infection remain unknown. This article is a report of an investigation of a fungus that caused a series of lesions on the index finger of a woman. While this paper is concerned only with the organism which was repeatedly isolated from the discharge, the following anamnesis, which was prepared through the kindness of Dr. A. J. Ochsner, is presented as it may be of some interest.

REPORT OF CASE

History.—Three years ago (February, 1916) the patient first noticed a small pinhead sized grayish-white lesion on the skin of her left index finger just lateral to the root of the finger nail over the distal phalanx. This minute lesion slowly and painlessly enlarged to a diameter of from 5 to 10 mm., and then discharged a yellow matter. At no time was the lesion painful. Within a few weeks other similar miliary abscesses formed on the same finger, always painless and rapidly festering, discharging a purulent material. These lesions followed each other in rapid succession and in crops—at one time the distal phalanx was practically covered by a coalescing mass of the minute miliary abscesses. After attempting to treat the finger herself with little success, she consulted a physician. Hot B. & A. dressings were applied with little benefit and the small lesions recurred quite regularly. Yellow mercuric oxid ointment and incision of the finger together with roentgen-ray treatment effected a disappearance of all lesions for a period of one year. In April, 1919, the small abscesses reappeared. At this time a culture was taken from the pus from one of the lesions and blastomycetes (yeasts) were grown in pure culture on several different occasions. The patient had never noticed any similar lesions elsewhere on her body. She had no other complaint and her general health was excellent.

MICROSCOPIC EXAMINATION OF DISCHARGE

Technic.—The material was taken from the lesions after the surrounding area had been washed and sterilized. An incision was then made into the lesion and the discharge collected on a sterile swab.

This was taken to the laboratory and plated out according to the usual procedures. Glucose agar plates and slants were used for growing the organism. The growth on this medium was white, slimy and quite luxurious, and seemed to differ very little from the growth secured with ordinary yeasts. The fungus grew readily between 18 C. and 38 C. Growth occurred, however, at temperatures below 18 C., but the extent was somewhat in proportion to the temperature.

Form and Size of Cells.—The vegetative cells of this fungus are round, sometimes slightly ovoid, with a granular interior. Some of the cells show the presence of vacuoles and fat globules. Young cells on glucose agar slants are quite regular in size and shape. The size varies between 3.5 and 6.5 microns. The cells from scums are quite different from those taken from glucose agar slants. There is a marked tendency to mycelial structures together with the formation of yeast-like cells (Fig. 1). The cells taken from the sediment at the bottom of culture tubes show a greater number of mycelial threads,

Fig. 1.—Cells from sediment of three month old broth cultures.

although this does not seem to be a constant characteristic. Judging from our cultures there seems to be a great adaptability for the changing of one structure into another. The yeast forms seem to be more common in liquid mediums, while on solid mediums there is a greater tendency to form mycelial threads. The yeast-like structures from glucose agar slants all show the presence of an opaque body. This is about one-thirtieth the size of the entire cell. In the larger cells, especially those which are tending to form mycelial threads, a double wall is visible. There seems to be a marked tendency for the cells to remain attached after having separated by budding.

Numerous observations failed to show the presence of ascospores. The gypsum block was used in an attempt to produce their formation. Although spore formation could not be demonstrated by the usual methods, we are not convinced that this fungus does not form spores.

Growth.—On glucose agar plates, this fungus forms round, slimy, white colonies at room temperature. In old cultures, there was a slight tendency to form a yellowish growth, but this was not constant. There

was no difficulty in getting growth on any of the laboratory mediums, but it was more extensive and appeared most quickly in the presence of glucose.

Giant colonies develop rapidly on glucose agar at 37 C. A white, luxurious growth with raised, wrinkled interiors and flat edges is obtained (Fig. 3). Extending from the raised center are a number of canals or striations which end in one of the spaces between the lobes of the edge.

The development in litmus milk is not rapid. Eventually, the casein, which coagulates without the formation of acid, is slowly digested. This would seem to indicate the presence of a rennin. The change in milk hardly ever appeared before fifteen days at room temperature.

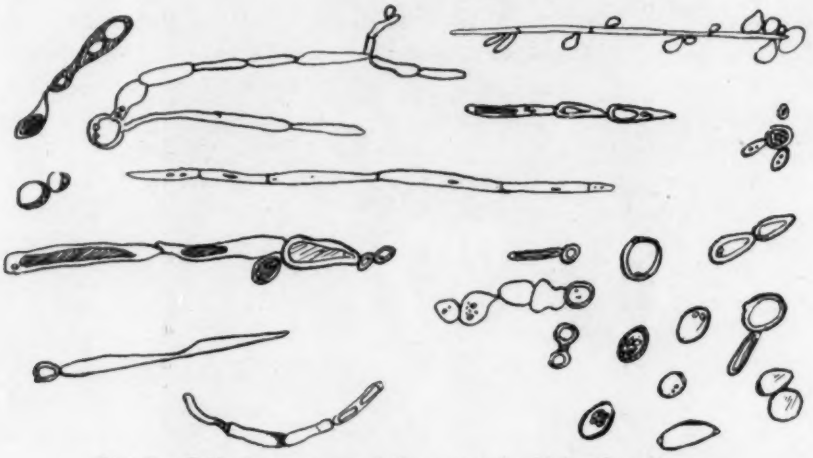

Fig. 2.—Cells from scum of three month old broth cultures.

Gelatin was completely liquefied, showing the presence of an active protease. Nitrates were not reduced.

Fermentation of Sugars.—The fungus is characterized by the absence of gas formation in all of the carbohydrates used as substrates, excepting glucose. On account of the investigations of Mudge[1] (1917) and Hasseltine[2] (1917), who have shown that sterilization of the higher carbohydrates in the broth is accompanied by hydrolysis to the monosaccharids, the carbohydrates were added to Durham fermentation tubes after they had been sterilized. Subsequent incubation before inoculation was resorted to in order to prove sterility. The inoculated

1. Mudge, C. S.: The Effect of Sterilization upon Sugars in Culture Media, Bacteriol. **2**:403, 1917.

2. Hasseltine, H. E.: The Bacteriological Examination of Water. Comparative Studies of Media Used, Pub. Health Repts. **32**:1878, 1917.

tubes in duplicate were left at room temperature in the dark for forty-two days, after which there were no evidences whatever of gas formation, with the exception of glucose. All tubes, however, showed the presence of a sediment which, with certain sugars, was quite heavy. The terminal reaction of the cultures was determined, but was not significant. The tubes were exactly neutral to phenolsulphonephthalein at the beginning. Fermentation experiments were carried out on the following carbohydrates: glucose, lactose, sucrose, dextrin, dulcite, adonite, galactose, inulin, mannite, levulose, raffinose, maltose, starch and melizitose.

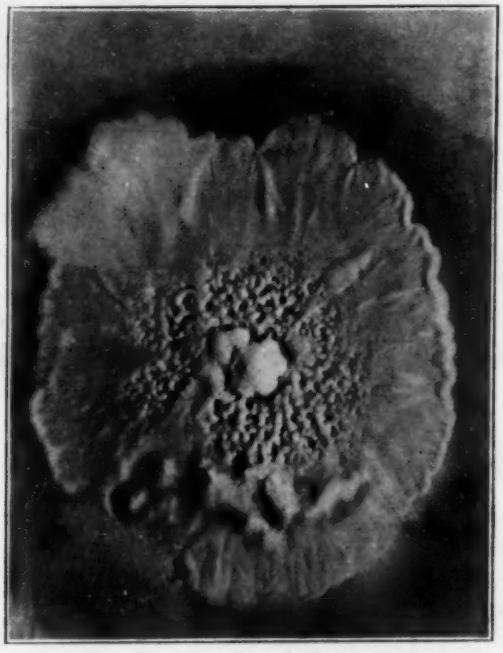

Fig. 3.—Giant colony of Endomyces albicans isolated from the lesions.

The action of this fungus on the glucose in fermentation tubes was interesting. Most of the time there was no formation of gas, especially if the tubes were left at room temperature. Culture tubes of this medium showed no gas even after two months at room temperature. At 37 degrees, however, there occurred very slow, sluggish formation of gas after a week. Sucrose was not inverted nor fermented. In most of the fermentation tubes, the yeast grew as a heavy deposit in the tube.

The organism was slightly pathogenic to guinea-pigs. Injections were made subcutaneously, and after two or three days a swelling developed which finally discharged a little and then healed. The results, however, were not fatal.

Affinity.—A study of the literature indicates that the fungus responsible for this infection has all of the characteristics of *Endomyces albicans.* This yeast is discussed by Guilliermond in his little volume, "Les Levures." *Endomyces albicans* has been characterized by other authors and given other names. Robin, who discovered it, called it *Oidium albicans,* and Audry, *Saccharomyces albicans,* considering it as a typical yeast. Vuillemin[3] studied it carefully and classed it as an endomycete. He was able to show the presence in old cultures of resistant units much like chlamydospores. He was also able to show the presence of sacs in old cultures on beets. However, other authors have been unable to find a variety which form spores.

Some have tried to explain this difference in morphology on the basis of the existence of several varieties of *Endomyces albicans.* This idea is somewhat borne out by several investigations.

Beauverie and Lesieur[4] isolated a variety of this fungus which fermented lactose and formed no ascospores. Castellani[5] analyzed the publications of many authors and showed that the species *Monilia albicans* is made up of many different varieties. According to Guilliermond, *Endomyces albicans* ferments glucose very feebly. This fact, together with the cultural and morphologic characteristics, indicates with little doubt that this infection was caused by that organism.

SUMMARY AND CONCLUSIONS

This fungus seems to be identical with *Endomyces albicans.* The value of microscopic examinations in lesions such as that described in this article is indicated by this study, since in the beginning they looked much like those caused by staphylococci.[6]

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3. Vuillemin: Les formes de champignons du muguet, Rev. mycologique, No. 80, p. 1899.

4. Beauverie, J., and Lesieur, C.: Etude de quelques levures recontres chez l'homme dans certains exsudats patologiques, J. physiol. & pathol. gen. **14**:983, 1912.

5. Castellani, A.: The Plurality of Species of the So-Called Thrush Fungus (champignon du muguet) of Temperate Climates, Ann. Pasteur Inst. **30**:149, 1916.

6. In addition to the references given, the following articles may be of interest: Ricketts, H. T.: Oidiomycosis (Blastomycosis) of the Skin and Its Fungi, J. Med. Res. **6**:380, 1901; Rajat, H.: Le Champignon du Muguet, Thesis for the Doctorate in Medecine, Lyon quoted from Guilliermond.

VIII.—A PECULIAR FUNGUS INFECTION OF THE SKIN (SOORPILZE?)*

MARTIN F. ENGMAN, M.D.

ST. LOUIS

The patient, E. W., entered the Barnard Hospital on May 7, 1914, complaining of a pruritic condition of the vulva. She was a negress, aged 46, fairly well nourished, and found to be clinically healthy except for a ++++ Wassermann reaction and the skin condition from which she suffered.

She stated that the disease began on "an irritated spot" on the inner side of each thigh, about December, 1913, and that these spots increased in dimension until they occupied the areas at present involved.

On examination, about the upper part of the thighs, sweeping out from each side of the vulva, extending farther on the right than on the left, was a sharply defined, scaly area, the exact location of which can be seen in Figure 1. The condition looked exactly like that of a tinea inguinalis or that produced by *Epidermophyton inguinale*. One could not have differentiated this infection from one produced by either of the above named organisms. Underneath each breast was a similar area, sharply defined, slightly raised, and more of a purplish inflammatory hue than that seen on the thighs (Fig. 2). The edges of these lesions were undermined and finely papular at the border, while the furfuraceous scaly center seemed to be depressed below the surface of the normal skin.

There was some pruritus, particularly around the vulva, but not marked. The process was very rebellious to treatment, and so was the patient. She made several short sojourns in the hospital without her condition being benefited to any marked degree.

Preparations made with potassium hydroxid in the usual manner for looking for such organisms, disclosed a peculiar fungus, the drawings (Fig. 3) of which were made by Dr. Amin Boutros, who was house physician of the hospital at that time. Cultures were also made, the photographs of which are submitted (Fig. 4).

As no classification could be made of the fungus, we sent the smears and cultures to Prof. George Moore of the Missouri Botanical Gardens, who kindly examined them and sent us the following report:

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* Studies, reports and observations from the Dermatological Departments of the Barnard Free Skin and Cancer Hospital and the School of Medicine, Washington University, St. Louis, Mo., U. S. A., Service of Drs. M. F. Engman and W. H. Mook.

Fig. 1.—Lesions on the thighs. Note the definite border.

Fig. 2.—Lesions under the breasts; the same banded border is present here.

Fig. 3.—The organisms as seen in a potassium hydroxid preparation under the microscope.

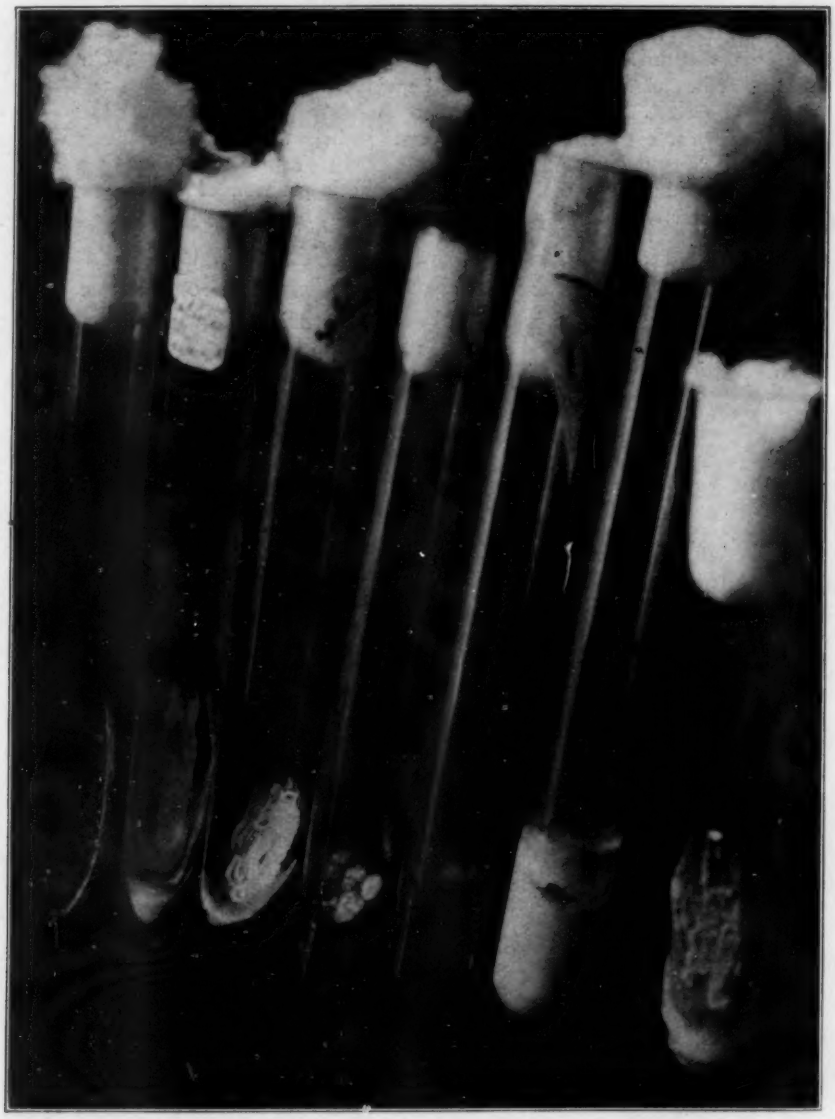

Fig. 4.—Photograph of the cultures made on nutrient agar.

"The fungus which you turned over to me about a year ago belongs to the general group known as the Hyphomycetes, or fungi imperfecti. This group is a sort of botanical wastebasket for those forms of which the life history is not completely known, and consequently it is not very well defined. The plant undoubtedly belongs to the order Moniliales and resembles to some extent both Monilia and Oidium. There is the strongest probability, however, of its belonging to the genus Botrytis, but I was never able to obtain satisfactory material from the cultures to definitely settle this point. As to the relation of your organism to other known pathogenic fungi, it comes closest to the well known 'Soorpilze' of thrush, which has received some ten or a dozen different names and the precise systematic position of which has never been satisfactorily worked out."

Thorough search and study revealed no Trichophyton.

The case is reported merely as one of interest from the peculiar fungus which seemed to be the etiologic factor.

NECROPSY FINDINGS IN A CASE OF CONGENITAL SCLERODERMA AND SCLERODACTYLIA *

FRED D. WEIDMAN, M.D.

PHILADELPHIA

Today there are two diseases which the dermatologist thinks of as producing a hardening of the skin in very young infants or in the new-born; these, edema neonatorum and sclerema neonatorum, are so uniformly and routinely described in all the text-books that they at once come to the mind of every dermatologist when any abnormal cutaneous firmness appears at birth or in early infancy. This is true in spite of their rarity, particularly in the case of sclerema neonatorum, which the case herewith presented most closely resembles, and which is so uncommon that the occurrence even of clinical cases is still held to afford sufficient ground for report in the literature. In reviewing the literature of the last five years, I have found only fourteen such case reports.

The unusual title given it and the usefulness of this case depend almost entirely on the fact that a necropsy was performed, and that the subsequent microscopic examination revealed certain features which did not correspond to those published of either of these two diseases. This led to a search of the relevant literature and further study, with the result that I found another writer, Lieberthal,[1] who believes that there is such a condition as scleroderma to be found in the newborn, and another, Cockayne,[2] who found it in an infant 7 months old. It is to support this idea and to indicate still further that scleroderma may be found (rarely) among infants as well as adults, and also to place on record what I believe to be valuable necropsy findings that this communication is offered.

RELATIONSHIP OF CUTANEOUS INDURATIONS

It might conduce to clearness if at the outset certain points relating to the above three indurating cutaneous diseases be noted briefly:

The first, edema neonatorum, is a disease which our case in no way resembled; at one time it was confounded with the real sclerema neonatorum, but later was placed in its proper separate position when it was recognized that fibrous tissue was not the important factor in the induration, but rather an infiltration of fluid. The second, sclerema

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* From the Laboratory of Dermatological Research, University of Pennsylvania.

1. Lieberthal, D.: J. Cutan. Dis. **36**:31 (Jan.) 1918.
2. Cockayne, E. A.: Brit. J. Dermat. **27**:288, 1915.

or scleroderma neonatorum, cannot be so summarily dismissed, and its present status must be indicated before proceeding to the features of the case herewith reported. In this disease, a thick, inelastic skin is found on the extremities of a pallid new-born baby, generally associated with a bloody diarrhea and subnormal temperature. The disease appears shortly after birth, spreads over the calves, back and buttocks, may become general, and usually results fatally.[3]

With regard to the morbid anatomic phase of sclerema neonatorum, we find very few records of necropsy or microscopic examinations, and

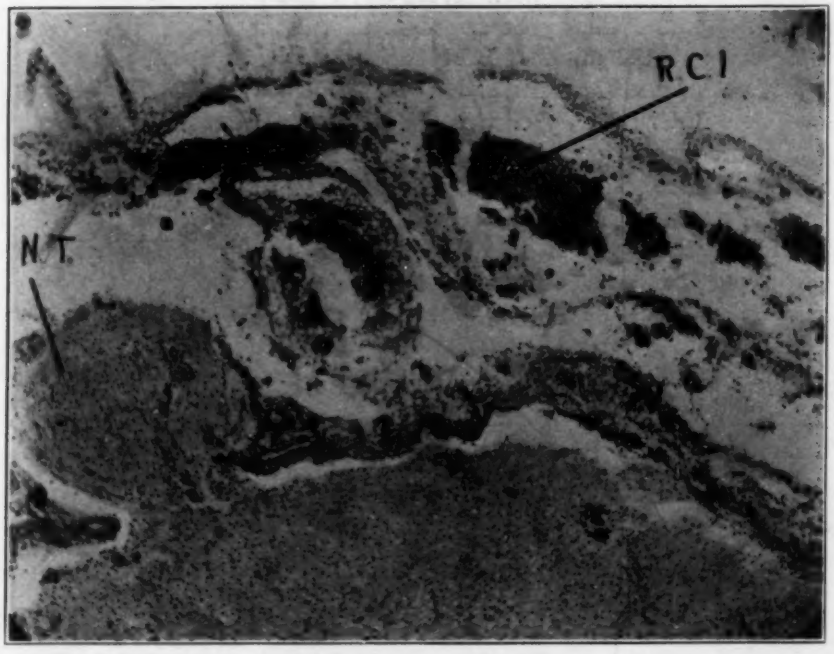

Fig. 1.—Subacute spinal leptomeningitis. Emerging nerve trunk at N T, cellular infiltrate at the dark granular masses R C I.

when such examinations have been made we find that still fewer opinions have been expressed as to the application such findings might have in establishing the etiology of the disease and enabling us to derive therefrom a useful classification. This is at first sight surprising in view of the fatal nature of the disease, which ought to furnish a goodly proportion of necropsies; but on further thought it is easily explained when it is recalled that the disease is rare, not commonly recognized outside of the specialty, and that there is, unfortunately, a tendency

3. So considered usually. Of the last ten patients whose cases I have reviewed in the literature, seven recovered and three died.

in general practice to pass over a number of different congenital diseases as marasmus or syphilis, as though they were all one and the same thing — hopeless therapeutically, and not deserving of special study.

The morbid findings in sclerema neonatorum are discussed among others most thoroughly and sensibly in a recent article by Paterson,[4] who has reviewed the literature up to 1915, and from whose article I abstract briefly:

Grossly there are no constant visceral lesions, those present being considered as complications or sequelae, and having no causal relationship to the

Fig. 2.—Elacinous degeneration of artery in subcutaneous muscle. Compare with artery at bottom of Figure 5.

disease. The skin, according to Parrott, is thin, showing essentially an atrophy and consolidation with atrophy of the subcutaneous fat. Ballantyne says that the skin cuts like bacon rind, and that the subcutaneous tissue, unlike the normal yellow, is white and glistening.

Paterson tries to harmonize the two by regarding Parrott's description as applying to an early stage, and Ballantyne's to a later, at which fibrosis has supervened on the atrophy. Microscopically, the skin in sclerema is notably thinned, the reduction coming about as a result of

4. Paterson, W. S.: Quart. J. Med. **8**:317, 1915.

"compression" and obscuration of rete cells and atrophy of the corium. The fat lobules of the subcutaneous tissue are small and separated by excess fibrous tissue. The only illustration I could find was a poor woodcut in Ballantyne's book.[5]

The third indurative disease considered, scleroderma, or sclerema adultorum, almost always occurs in youths or adults, the youngest recorded case, according to Crocker,[6] being that of a child, thirteen months old.[7] Of its two forms, the diffuse symmetric and the circumscribed, the former is the only one to be considered in the case I report by reason of its diffuseness and symmetry. In this form almost any part of the body may be affected; its extent has almost no limitations; the skin surface is sometimes smooth, sometimes rough and variously of normal color, pallid or pigmented, depending on the age of the process.

Histologically, there are no essential changes in the epidermis, such as are described in sclerema neonatorum; there is a hyperplasia of collagen in the corium, but no constant fibrosis of subjacent fat and muscle.

After comparing these three diseases (particularly with respect to the morbid histology), I come to the conclusion that my case, in spite of the tender age of the subject, is one of scleroderma and not sclerema neonatorum, and that from this circumstance our age conception of the disease scleroderma adultorum or sclerema adultorum must be broadened to include also infants and the new-born. On the other hand, the disease which we now know as sclerema neonatorum, and whose etymology would make it of the same nature as sclerema adultorum, must at present be distinguished, pathologically, from the latter; at least until there is further proof of identical etiology. As Lieberthal suggests, it would really be better—less confusing—to drop the terms sclerema adultorum and scleroderma adultorum and call the disease simply scleroderma; this is another reason for adopting the name recommended in the provisional nomenclature of the American Dermatological Association.

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5. Ballantyne, J. W.: Diseases of the Fetus, Edinburgh, Oliver & Boyd, 1895, p. 176, Figure 1.

6. Crocker, H. R.: Diseases of the Skin, Ed. 3, Philadelphia, P. Blakiston's Son & Co., 1903, p. 626.

7. Lewin and Heller: (Die Sclerodermie, eine monographische Studie, Berlin, August Hirschwald, 1895) report as youngest cases one (No. 424) at fourteen days, and another (No. 143) at three weeks. The former, however, was reported in 1758 at a time when edema and sclerema neonatorum were not distinguished from scleroderma and therefore may not be valid cases of scleroderma.

I have already referred to Dr. W. S. Paterson's paper on sclerema neonatorum, and just as this article goes to press I received several photomicrographs from him from Glasgow picturing both scleremato us skin from his necropsy case and normal controls. He was unable to send me the original histologic sections. Under the reading glass the scleremato us skin sections appear almost precisely like those from adult sclerodermic cases which Dr. M. B. Hartzell prepared in Vienna, and furthermore, they do not show the condensation or atrophy which are considered as part of the histology of sclerema as originally

Fig. 3.—Hyaline degeneration of artery walls (A) in pancreas. Fibrosis and round cell infiltration elsewhere.

described. In this conclusion Dr. Hartzell, who has also seen the prints, also agrees.

In most of Dr. Paterson's photographs the epidermis shows nothing abnormal, while in others which are marked "pemphigoid portion," all of the cells, including the rete, appear to be in a state of hydropic degeneration. I cannot make out any of the condensation which has been described by Parrott.

The most striking, and practically the only, constant feature in the photographs is an extreme condensation of the collagen bundles in

the corium. It can be distinctly made out in all the photographs submitted that the latter are dense and hyaline, that the lymphatics between them are extremely narrow or nil and that there is a little multiplication of collagenous spindle cells. The corium as a whole is fully 50 per cent. thicker than the normal, as shown by the photograph of normal skin taken at the same magnification, which Dr. Paterson has also kindly sent. There is absolutely no extension of the fibrous overgrowth into subcutaneous parts such as was seen in my case.

As far as the photographs will allow judgment, this case of Dr. Paterson's is histopathologically identical with scleroderma of adults. Dr. Paterson's case appears to be in no way different from the commonly described ones of this disease in adults, except that it occurred in an infant, whereas my case was the unusual variety of the same which has been described by Marie, Thibierge and Westphal.

From these circumstances I feel certain that Dr. Paterson's necropsy case at least is, like mine, one of scleroderma and not sclerema, and if I am right in this, the next step in advance will lead to the conclusion that there are doubtless numbers of other cases of sclerema which are also anatomically sclerodermas; and that, after all, scleroderma may prove to be much commoner in infants than at present supposed. Data on previously published cases are insufficient to determine surely this point, as it depends on histologic examination of the diseased skin and at the same time comparison with normal baby skin with whose histology many workers are not familiar, and to which they have not access. Dr. Paterson has been an exception to this class.

The basis for all this confusion probably lies in the fact that sclerema is a group disease etiologically, and that different observers have been forcibly harmonizing their cases with the already described variety, and that the morbid anatomy must be expected to vary in different cases even where they are of the same causation. Tentatively, therefore — until a valid classification arrive — we should not from the pathologic side, insist on a rigid histologic agreement in every case, nor, on the other hand, err, clinically, by placing the disease precisely here or there solely on the basis of age or other single circumstance. That is, the findings should be reported, and the relationship to previously described cases discussed, but it is too much at present to claim that every case of such cutaneous induration will either fall into edema or sclerema neonatorum on the one hand, or into scleroderma on the other. It is with this understanding and qualification that I have anatomically entitled this case scleroderma. As every physician will recognize, this recommendation is no more than is accepted for many other and better known diseases.

REPORT OF CASE

History.—The child, a negro, was born on the eve of the departure of a resident, and its earlier history was neglected. I regret that these notes are not as full as the case merits. It weighed 6 pounds and 1 ounce at birth; it was breast fed, its temperature ran between 98 and 98.3. When 3 days old its temperature rose to 100 F. The infant showed "spasticity" of all extremities, an erythematous eruption over the sides of the chest and back, and it had a bloody diarrhea. Information as to the time of onset, sequence and duration of these symptoms are now unobtainable. When about 7 days old, it was seen by Dr. M. B. Hartzell, who reserved diagnosis, but thought that the cutaneous

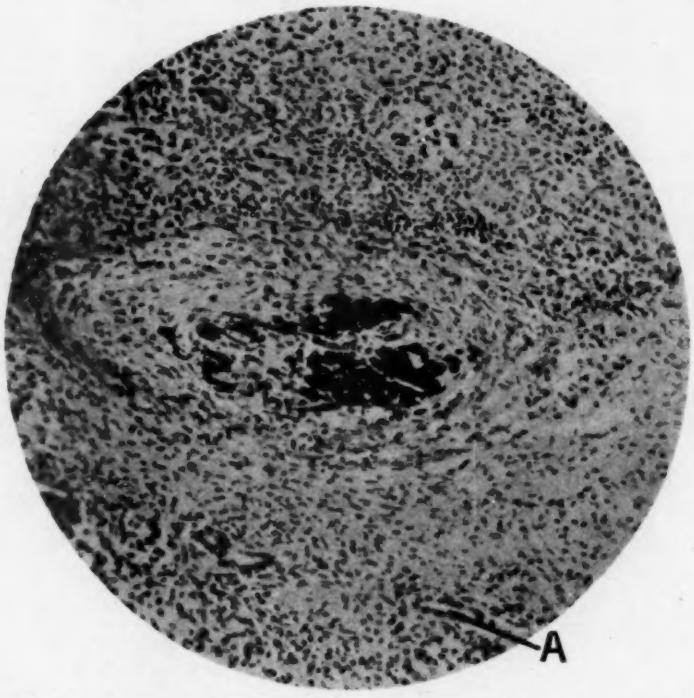

Fig. 4.—Fibrosis, calcification and obliteration of artery in pancreas; atrophic acini at A.

disease was not syphilis. At that time the neck was rigid, and the skin hard and immovable over the flexures of all the extremities. There was no alteration of color, texture, or other surface characteristics of the indurated parts of the skin. There were no stigmas of syphilis, such as rhagades and blebs. On the day the infant died it weighed 4 pounds 6 ounces, and at necropsy 4 pounds; having lost 2 pounds and 1 ounce in the fifteen days of its life.

DIAGNOSIS

The diagnosis in this case depends partly on the clinical features, but more on the morbid anatomic—essentially microscopic—findings. The disease occurred immediately after birth, was associated with a

bloody diarrhea and ended fatally; thus, if the diagnosis rest on the clinical features only, there are strong reasons for thinking that this was a case of sclerema neonatorum; that is, if all dermatoses showing this complex were included in the disease sclerema neonatorum, this case would be classified under that name. The only clinical feature, in fact, against the diagnosis of sclerema is the symmetry of the involvement. But Parrott and Ballantyne long ago gave us certain morbid anatomic features in addition, which serve to confine the disease within narrower limits; these now loom up importantly in the possible differential diagnosis of sclerema neonatorum from this case of congenital scleroderma.[8] These differential histologic features consist in the absence of change of any kind in the epidermis or corium of my patient. Both appear normal. The clinical cutaneous hardening is now found to be subcutaneous. In sclerema neonatorum, on the other hand, there are important changes in the rete cells and an atrophy of the corium in addition to the subcutaneous fibrosis, and there is no record of muscular fibrosis, such as was seen in my case.

On the other hand, why do I finally decide in favor of scleroderma? I have just stated that the epidermis and corium were unchanged microscopically in my case, and that the fibrosis which produced the hardening was found only in the subcutaneous parts. I admit that this is not the histology of accepted scleroderma; and at the outset I wish to indicate why I have, in spite of this, thus entitled my case. It is because there is a "hide-binding"—a hardening of the skin—which, histologically and otherwise, has proved not to be edema or sclerema neonatorum. Elephantiasis has been considered as an alternative diagnosis; but it is dismissed on the basis of the widespread and symmetrical distribution in this case, and the age of the subject. The only disease with which the case can possibly be classed, dermatologically, without creating a new term, is scleroderma; and, furthermore, cases of this kind have already been described by Thibierge,[9] Méry, Westphal, Schultz and Goldschmidt, in which, as in my case, sclerosis was not present in the corium but in the subcutaneous tissue. I believe it better to consider that scleroderma is a group lesion, which is already known to be of variable etiology; that a lesion of such varied

8. I say "possible" in the realization that so little can be said dogmatically from the morbid anatomic standpoint in any disease until the etiologic factors are established; and if the causes of sclerema neonatorum and scleroderma should at some future date prove to be identical we would, of course, cease to regard the anatomic differences as "differential" ones, but simply as variants, perhaps depending on the disease stage in one and the same disease: witness the variability in degree of epithelial proliferation in histologic sections from different cases of skin tuberculosis—all one and the same disease etiologically.

9. Thibierge: Rev. de méd., 1890, p. 291.

etiology should be expected to vary occasionally in anatomic placement, at least to the degree shown in these subcutaneous cases; and that until the time comes when the rational etiologic classification is certain, it is better not to create a new name for a disease, but to classify it at least tentatively with some already established one. Better to put a rear

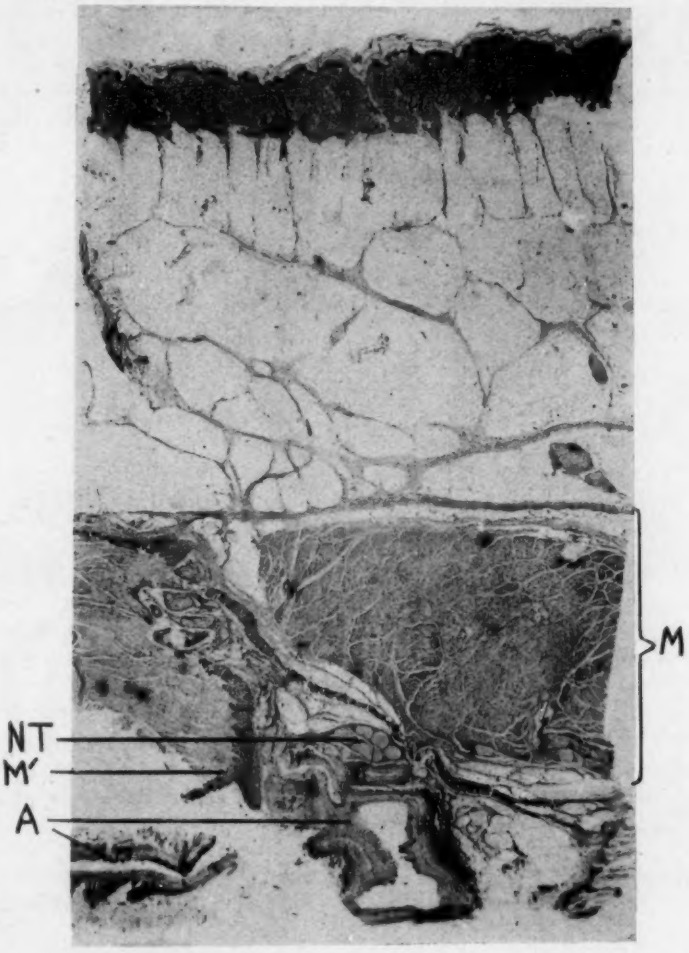

Fig. 5.—Very low power of section of skin over popliteal space. Fibrosis only begins when the lower portion of the fatty subcutaneous tissue is reached, that is, there is no fibrosis in the upper parts of the skin. M, muscle; N T, nerve trunks; A, arteries; M′, region from which Figure 9 was taken.

shed temporarily on the old building than to build a new structure which will eventually have to be torn down and perhaps never have any connection with the old building. This is the course taken in the case herewith reported.

Gross Necropsy Notes (Abstracted).—The child had been dead for three days when necropsy was performed, and the body was considerably putrefied. Dense fibrous adhesions were found around the appendix and gallbladder.

Heart: Grossly the heart appeared normal. Foramen ovale and ductus arteriosus were patulous to the small probe.

Lungs: Grossly the lungs appeared normal except for congestion.

Spleen, Liver and Kidney: These appeared normal as far as the postmortem softening would allow judgment.

Small Intestine: The mucosa was normal except for Peyer's patches, which were slightly elevated, superficially ulcerated and showed granular red points. The lumen of the duodenum, jejunum and upper ileum contained thin, yellowish-gray, soupy material, which gradually became blood-tinged toward the lower ileum, and deeply so in the lowest.

Large Intestine: This (including the appendix) had a normal mucosa. It contained deeply blood-stained feces. The muscular and serous coats of the whole intestine, large and small, were normal.

Pancreas: This was normal in size, homogeneous, creamy in color, but hard.

Ureter and Urinary Bladder: These were normal.

Suprarenals: They were rather pale and soft, and below the normal size for an infant; otherwise, they were normal.

Head: The scalp, calvarium, dura and sinuses were normal. The pia-arachnoid was also normal.

Brain Substance: This was soft, and almost diffluent from autolysis. No gross abnormalities were found on extensive section.

Spinal Cord: This was so soft that it was useless for gross study. Apparently there was no inflammation, acute or chronic.

Extremities: Wegner's sign was negative for the right diaphyso-epiphyseal junction so far as yellow color was concerned; but the line was irregular. Motion within the joint was quite free; its cavity was quite normal; there were no adhesions or roughenings of the lining. All periarticular tissues, however—joint-capsule, tendon, muscle, subcutaneous tissue, skin—were hard, fused, interlaced by white fibrous strands, and had clearly been responsible for the "spasticity" noted clinically.

Thyroid: This was normal in size, firm, and of normal homogeneous semitranslucent character.

Microscopic Findings.—All tissues examined histologically were fixed in Orth's fluid and sections were stained with hematoxylin and eosin.

Heart: The epicardium was normal except for congestion of its vessels. The endocardium was locally thickened, its fibers were largely granular and fused, and the nuclei pyknotic and deformed. There were no cellular infiltrates here, the appearance being that of advanced degeneration or near-necrosis, and not inflammation. The myocardium was normal, except around the arterioles where it was almost invariably infiltrated by lymphocytes and a few plasma cells extending in a thick mantle partly around the vessel. The endothelia of the vessels was not proliferated. Leukocytes in the lumina were recognizably increased in proportion to the red blood cells, and were mostly lymphocytes.

Lung: The pleura was normal except for congestion. The bronchi and vessels were also normal except for some over-distention of the former, and congestion of the latter. The air sacs were well expanded and empty; but their walls were thick and rich in closely packed, deeply staining, deformed connective tissue nuclei. There was no swelling or hyperplasia of the lining cells of the air sacs.

Liver: The capsule was very slightly thickened over the surface of the organ, and distinctly so in the perilobular positions around the artery, vein and duct; but no cellular infiltrates were found anywhere in the section. The arteriolar walls were thick in comparison to the lumen, but not fibrosed or hyaline. Their muscle fibers were granular, as though from the action of some toxic agent. The blood capillaries were very narrow or unrecognizable, presumably from the autolytic swelling of the parenchymal cells. In spite of these postmortem changes, it could be seen that the liver cells contained multiple vacuoles and were evidently fatty degenerated.

Kidney: Allowing for the postmortem degeneration, this organ showed no notable abnormality. There was no increase of intercellular substance, no cellu-

Fig. 6.—Medium power of *upper part* of skin of sclerodermic baby for comparison with normal (Fig. 7). Both are from over the popliteal space; tissue fixed, hardened and stained identically and photographed at the same magnification. The normal baby was 8 months old, the sclerodermic 15 days. There are no important differences in the thickness or character of the several parts of the skin; no fibrosis of fat. Compare with Figures 5 and 7.

lar infiltrates or nuclear proliferations of the glomerular tuft. The vessels were only moderately congested. Tubular epithelium was granular and swollen, as would be expected in autolysis.

Spleen: As with the kidney, only a moderate congestion was noted from the pathologic point of view; there were no arterial fibrosis, hyperplasia of the reticulum or increase in the number of cells of the splenic nodule.

Pancreas: A section from the tail of this organ exhibited a very slight fibrosis in all but one lobule. In this it was marked, not only separating groups of acini but also isolating individual acini in a matrix of young fibrous

tissue. Here the acini were a little atrophic; but elsewhere they appeared normal. Islands of Langerhans were numerous, large and normal. Several arteries, veins, nerve trunks and lymph nodes were noted in the peripancreatic areolar tissue, and were normal except for the congestion common to all the viscera. A section from the head showed a highly autolytic duodenal mucosa along one border, which apparently had not been diseased during life. The pancreatic tissue was in part normal, but in greatest part showed fibrosis similar to that just described, only much more marked. As a rule, the outline of the lobules was preserved by persistence of the original denser type of perilobular fibrous tissue; but over large areas even this was lost, and these parts then consisted of an extensive matrix of young fibrous tissue richly infiltrated with lymphocytes, endothelioid and plasma cells within which gland spaces occurred singly or in groups. Arteries in the fibrosed parts were also fibrosed; several smaller ones had thick, hyaline walls and narrow lumina, while a larger one was completely obliterated and its central parts calcified. These arteries were diseased differently from the hepatic ones, for here the process was definitely chronic. There was no endothelial hyperplasia of the intima. The matrical fibrous tissue was in places largely granular and its nuclei distorted as in advanced degeneration; but whether this was due to autolysis (in the pancreas) or toxemia, cannot be stated. The gland spaces just mentioned were variously sized, some tubular, like ducts; and others round and perhaps grouped like acini. Their lining cells were occasionally fragmented and necrosing; but generally they were intact and stained surprisingly well. If the other parts of the section had not been examined, this fibrosed portion might easily have been mistaken for adenoma or perhaps adenocarcinoma. Ducts in the more normal parts were normal as were also arteries everywhere. Islands of Langerhans were fairly numerous, some small, some large, and were normal except for autolysis.

Suprarenal: This was thin as a whole, and the different zones of the cortex were very poorly differentiated. All cells were shrivelled, granular, free of vacuoles, but with large deeply staining nuclei. There were no fibrosis, congestion or cellular infiltrates. The medulla was swollen and, merged with the pars reticularis, autolytic. A second section had the same general features. A portion of skeletal muscle was attached to the capsule externally (it must have been the upper portion of the psoas), and showed none of the fibrosis found in periarticular muscles.

Small Intestine: The serous covering of the peritoneum was quite normal. The subjacent fibrous tissue was swollen, a little granular, and in one place lightly infiltrated by a perivascular lymphocytic mantle. The blood vessels were congested, and their endothelia were swollen. Muscle fibers of both tunics were likewise swollen, and slightly dissociated by edema and widely scattered red blood cells. The submucosa at one end of the section was normal; but toward the center (at the margins of an ulcer) it became heavily thickened by proliferated connective tissue cells and a lymphocytic and plasma cell infiltrate, and here appeared a group of small arterioles, with walls thickened by edema. In all thickened parts there were numerous young capillaries—that is, this was a granulation tissue. At the other end of the section the submucosa was still more heavily thickened, and its more superficial parts were necrotic and merged with the necrotic mucosa. Along one stretch the mucosa and most of the submucosa were deficient (evidently sloughed off), producing an ulcer reaching just short of the muscularis. The internal muscular tunic here was also necrotic and the outer coat here was especially swollen. The

mucosa was superficially autolytic everywhere. At the more intact end of the section the nuclear staining was maintained at bases of crypts; but toward the ulcer this was quite lost, the cells disappeared, and only the stroma remained.

Thymus: Its surrounding areolar tissue contained arteries, veins, nerves, lymph nodes, lobules of fat and a little skeletal muscle. Of these, the arteries, veins and nerves showed no abnormality. Muscle fibers were very well preserved; their transverse markings showed well but the nuclei were solid and sometimes distorted. There was neither interfascicular fibrous overgrowth nor interfibrillar. The fat occurred in small round lobules. Its cells were of an undifferentiated type, many showing a central pyknotic nucleus which was only more or less surrounded by fat globules. The lymph nodes were all very small and exhibited no fibroses; their lymphocytes were abundant and uniformly distributed in both cortex and medulla without the production of follicles. The thymic lobules were of about normal size, well circumscribed, and fairly rich

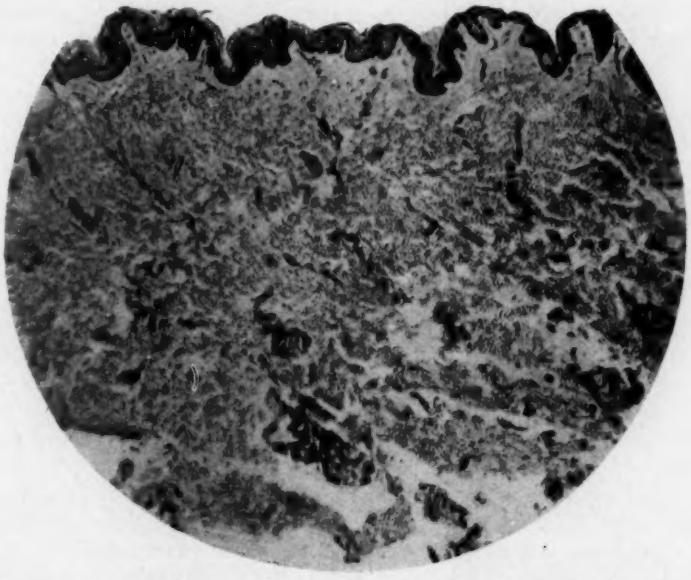

Fig. 7.—Normal skin from popliteal space of 8 months old baby dying of enterocolitis.

in lymphocytes. These were not packed more closely in the cortex, as is normal. The supporting reticulum was distinctly fibrosed. Corpuscles of Hassall were moderate in number, and one was calcified. In several different parts of the areolar tissue, extensive diffuse infiltrates of widely placed lymphocytes and plasma cells occurred.

Periarticular Tissue: This tissue was taken from the dense material adjacent to the knee joint, near the point of insertion of the tendon of the vastus externus into it. The section showed tendon, transversely cut muscle fibers and a few obliquely cut ones, fat lobules and a few small arterioles.

The tendon and interfascicular fibrous tissue were in greatest part normal; but in places both showed granularity of their fibrillae, took the stain more faintly than elsewhere and their nuclei were pyknotic or lost. They were evidently degenerate or nearly necrotic. Arteries frequently showed some pro-

liferation (and always swelling) of lining endothelia. The lumina were generally narrowed, and in one instance completely closed. In the latter case the endothelial cells were granular, disintegrated, fused, and their nuclei pyknotic and distorted, that is, were almost necrotic. The fat, unlike the last section, was normal, with no atrophy of its cells or intralobular fibrosis. The muscle showed marked fibrosis of all the interstitial parts: perimysium, epimysium and endomysium. The thickening of the last was most striking because added to it was an edematous infiltrate which irregularly broadened it still more, and gave it a smooth, hyaline appearance. The edematous material took on the form of a reticulum the strands of which were of irregular thickness — now filamentous, now sheet-like—within the meshes of which the muscle fibers lay.

The muscle fibers were never normal. The less severely affected ones were small, and showed no nuclei or small pyknotic ones. Their substance was hyaline and occasionally also vacuolated. The more severely atrophic ones appeared as shadowy, pale, hyaline, polygonal bodies, occasionally with a minute solid nucleus, but oftener with none, and so lacking in normal characteristics as to be scarcely distinguishable from the edematous endomysium surrounding it.

Infiltrates of lymphocytes and plasma cells and, rarely, a few polymorphonuclears were sparingly scattered in the muscle bundles and fibrous tissue around them. They were never arranged focally or otherwise to indicate a specific disease such as syphilis.

Spinal Cord: The dura was normal. The pia-arachnoid was torn, owing to its natural looseness, so that the exact relations of the patches of exudate to vessels and nerve trunks could not as a rule be made out. It was traversed by hugely distended and congested vessels, and infiltrated by a fibrinocellular exudate. The fibrin was loose, its strands were fine in most places and it enmeshed mostly lymphocytes; but a goodly number of polymorphonuclears, and not infrequently red blood cells, were also encountered. In all portions of the cord circumference, and frequently closely adjacent to blood vessels and nerve trunks, clumps of tissue were seen, the fibrillae of which were heavier than the fibrin, and which struck a blue tint and ran, in general, parallel to the cord circumference. They enclosed very closely packed cells of the same kind and in about the same proportion as mentioned in the case of the fibrin; but here their cytoplasms were granular and their outlines obscure—they were degenerate. Between them a pink, coarsely granular precipitate was noted. These clumps doubtless represented degenerate or necrotic portions of the pia-arachnoid which had been more severely affected than other portions. All of the lymphocytes had unusully broad cytoplasms, even in the lumina of the blood vessels; and while at first sight they suggested plasma cells, the nuclei were not sufficiently excentric nor small enough in proportion to the cytoplasm. Nor did they show the peripheral grouping of chromatin which is characteristic of such cells. With this staining, and recalling the postmortem softening found grossly, the condition of the nerve fibers in the white matter of the cord could not be judged certainly. There were, however, no cellular nor fluid infiltrates of any kind. The central canal was normal. The gray matter of the horns was granular, torn, irregularly vacuolated, and was apparently semi-fluid. The cells in both anterior and posterior horns were badly degenerated, and their cytoplasms disintegrated; they contained coarse blue granules, were generally without a nucleus and rarely showed a pale one. The nerve trunks in the pia were not infiltrated by either fluid or cells, nor were they recognizably degenerate.

Skin: The corneous layer was thickened by a heavy superficial stratum of thin epidermic scales suggesting improperly removed vernix caseosa. This was suddenly and sharply succeeded by a thin stratum corneum consisting generally of one, and never more than two, layers of cells. A stratum granulosum or lucidum was not recognizable as such. The rete mucosum consisted variously of from one to six layers of cells, the average being about three. Small groups of cells contained, at wide intervals, fine grains of melanin. Papillae showed early development (but not any near hair follicles).

Passing to the corium we found the pars papillaris poorly developed embryologically, corresponding to the beginning stage of the papillae. Even thus early it showed a looser character than the stratum reticulare. It was normal except

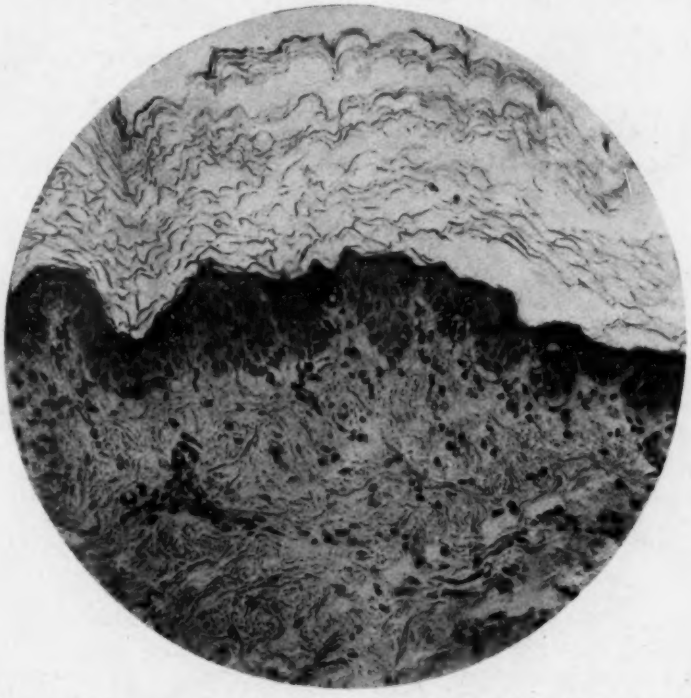

Fig. 8. — High power of skin of sclerodermic baby. Normal epidermis (contra sclerema neonatorum) and corium.

for the presence of an occasional small group of lymphocytes. The collagen bundles of the stratum reticulare were narrow and not associated with increase of elastic tissue, as shown by the Weigert staining. Nuclei of the bundles were on the whole plump, numerous and normal. Arterioles and capillaries were conspicuous by reason of their young type of endothelia, together with a light infiltrate of lymphocytes immediately around them.

The hair follicles and sweat glands were normal. There was no proliferation of intertubular connective tissue in the latter.

The subcutaneous fat was surprisingly abundant for such an emaciated infant, measuring from 5 to 6 mm. in thickness in microscopic section. Its intralobular fibrous tissue was about normal in weight, but the perilobular was

distinctly fibrosed. It carried no cellular infiltrates except around vessels which showed the same features as in the corium. The fat globules were normal, showing none of the hypoplastic changes noted in the section of the thymus. Under the fat, an extreme hyperplasia of white fibrous tissue embraced nerves, arteries and muscles alike, sending finer or coarser septums into the muscle fasciculi and surrounding individual fibers, as in the section from the peri-articular regions. Here many muscle fibers were cut longitudinally and showed, in addition to the atrophic and degenerative changes noted in a previous section, a hyperplasia of nuclei, most of which were pyknotic and solid, and not of the larger "budding" type seen in regeneration of muscle. Many fibers contained multiple, fine, sharply marginated vacuoles—evidently they contained fat. Larger arterioles in these parts showed no fibrosis of the walls or reduction in the size of the lumina; but they did show frank degeneration along certain stretches. The internal elastic lamina, while unbroken, inclined in places to a bluish tint (elacin), and at the same time, might be surrounded both on the luminal and peripheral sides by a blue granular (calcareous) infiltration closely applied to and apparently extending into it. It extended not at all into the media.

Bone (from the end of the femur): Since the question of syphilis naturally arose, the examination was especially directed to the diaphyso-epiphyseal junction. It showed none of the irregularity or special lymphocytic infiltration of syphilis. The epiphyseal cartilage was perfectly formed, the cells toward the junction were arranged in their proper columns, and the line of the junction between the cartilage and the developing bone was regular and sharp.

The bony trabeculae of the diaphysis were delicate and of uniform thickness; and there were, if anything, smaller numbers of lymphocytes at the junction than toward the middle of the shaft.

The block of thyroid tissue was lost in technical washing; and I am unable to report on it microscopically. Bacteriologic cultures and special treatment for demonstrating the *Treponema pallidum* were not undertaken on account of the advanced postmortem change seen at necropsy and the method of fixation of tissue for histologic study.

Pathologic Diagnosis.—The following pathologic changes were found:

Heart: Local fibrosis and degeneration of the endocardium.

Lung: Congestion and atelectasis.

Liver: Fatty degeneration and perilobular fibrosis. Toxic degeneration of the arteries.

Kidney: Congestion.

Spleen: Congestion.

Pancreas: Chronic interstitial pancreatitis, atrophy, arteriosclerosis.

Suprarenals: Atrophy and exhaustion.

Thymus: Atrophy of the cortex and fibrosis.

Small Intestine: Subacute necrotic and ulcerative enteritis.

Muscle: Atrophy, edema, and chronic interstitial myositis.

Spinal Cord: Subacute fibrinocellular leptomeningitis and degeneration of horn cells.

Skin: Fibrosis of subcutaneous and muscular tissues; calcareous infiltration, elacinous and hydropic degeneration of the artery walls; atrophy and fatty degeneration of the muscle.

Bone (from the femur): Nonsyphilitic (morphologically), developing bone.

SUMMARY OF HISTOLOGIC FINDINGS

I have gathered the outstanding abnormal features of the foregoing description into eight groups on the basis of their value in interpreting the processes which had been going on in this baby. They are:

1. Retarded development. The lungs were atelectatic; the lymphocytes were deficient in the lymph nodes and thymus, and the lobules of fat around the thymus were of a simple hypoplastic type.

2. An ulcerative enteritis which showed nothing specific; i. e., indicated no special organismal (typhoid) or other causative factor. I am,

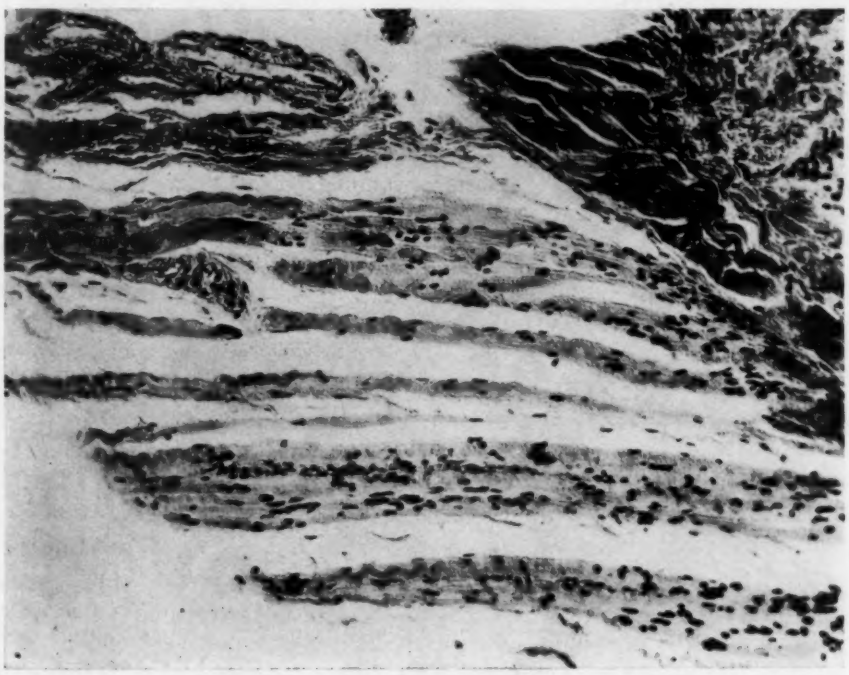

Fig. 9.—Degenerate skeletal muscle. Taken from part of Figure 5 marked M. Illustration is reversed by optical system in taking photograph.

therefore, justified in supposing that the usual enteritides group was at work.

3. A subacute meningitis. Here again there was nothing to indicate that any specific organism was at work; but from the fact that polymorphonuclears were in the minority, the meningococcus can probably be ruled out.

4. General congestive and degenerative changes secondary to the above acute infection or infections. These were seen in the heart, liver, spleen and arterioles of the liver.

5. Occasional local arteriosclerosis. This was marked only in the fibrous hyperplastic portions of the pancreas. The form of arteriosclerosis shown was a hyaline degeneration involving all coats, and associated with an obliterating endothelial hyperplasia. It appeared to be of at least a number of weeks' duration.

6. Other arterial changes. These consisted of: first, a simple elacinous degeneration of the internal elastic lamina (artery in subcutaneous muscle), in one case associated with what appeared to be a calcareous infiltration; and second, a degeneration of the arteriolar walls (liver) approaching necrosis which produced swelling of them and marked narrowing of the lumen. The first of these changes was probably a simple chemical alteration, and cannot per se be regarded as the effect of any certain pathologic agency. The latter, on the other hand, was distinctly of a type produced by acute toxemia, and is certainly referable to the enteritis or meningitis.

7. Nerve cell changes in the spinal cord. These could be interpreted only uncertainly on account of the confusing postmortem changes. In some sections, the cells had quite disappeared from the anterior, and in other sections from the posterior horns. Since nothing of interest was anticipated grossly, tissue was not fixed suitably for determination of myelin degeneration. I feel that the grade of nerve cell loss was too great to be accounted for on the basis of simple postmortem change; but I have to grant that there are absolutely no associated leukocytic or other phenomena to support an idea of inflammatory changes.

8. Fibroses of the pancreas, liver, muscle, fat and lung(?). That of the pancreas was extreme, of the type seen in congenital syphilis, and associated with sclerosed arteries. In the absence of syphilitic indications elsewhere, I am unwilling to state that this baby was syphilitic. The fibrosis of fat and muscle was likewise marked when present; but did not occur in all parts of the subcutaneous tissue. That of the lung should be considered more as a comparative than as a real fibrosis, only appearing to be bulkier on account of the imperfect development of the air sacs. That in the liver was no more than is seen in the well-known "infectious cirrhoses" of childhood, and could be referable to either the meningitis or enteritis. Taken all in all, the fibrous changes indicate a pathologic process certainly of longer duration than fifteen days (the age of the baby), and that therefore part of its disease was intra-uterine.

On the whole, then, the histologic picture is one of chronic disease affecting the pancreas, certain arteries of the pancreas and subcutaneous tissue and the subcutaneous tissues. On this is superimposed an acute infection primary in the intestines; but whether it is of sufficient duration to have caused the meningitis secondarily cannot be stated.

Neither can the relation of the meningitis to the subcutaneous fibrosis be shown today, but the symmetry of the involvement, the lack of cellular infiltrates of inflammation, together with hitherto recorded similar cases, support me in my belief that the meningitis (and possibly nerve cell degeneration) were causative.

THE RÔLE OF SYPHILIS IN THIS CASE

As before stated, I am unwilling to say that this baby was syphilitic. I feel that there is not sufficient evidence, in all fairness, to come to such an important diagnosis without qualification—important because

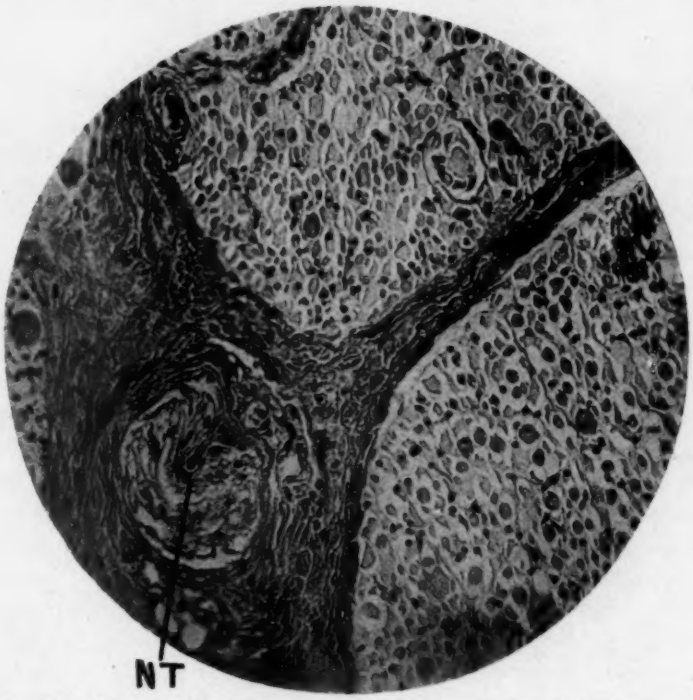

Fig. 10.—Muscle with fibroses and hyaline degeneration; N T, nerve trunk.

the local sclerosing traits of syphilis, such as were found in this baby's skin, generally speaking, could easily be conceived of as the effect of syphilis and thus vitiate the nervous incrimination finally arrived at. I appreciate that every one of the stigmas of syphilis need not be invariably manifested in every syphilitic infant, i. e., that plantar bullae, Wegner's sign, and pneumonia alba need not be insisted on before pronouncing a dead baby to have been syphilitic; but, more than this, in this case the only important evidence of syphilis was the histologic appearance of the pancreas. An eminent dermatologist saw no syphilis clinically, none was found at necropsy, and only one major

and several minor indications were noted in the subsequent histologic studies. In spite of all these facts, it is my belief that the *Spirochaeta pallida* would have been found had the tissue been available for its demonstration; but there is too much difference between faith and fact to say outright that this baby was syphilitic.

RÔLE OF ARTERIOSCLEROSIS

The case is perhaps of further service in regard to the question of relationship between the cutaneous fibrosis and arterial obliteration which all authorities agree are often present in scleroderma, but the sequence of which is disputed. Dinkler believed the arteriosclerosis to be primary; Unna, secondary; the latter advancing certain reasons and hoping for further future findings for additional evidence. Some evidence seems to be at hand in this case to uphold Unna, for in the sections of the skin in this case, the collagenous hyperplasia had become developed without any signs of vascular closure. In the pancreas, vascular closure and fibrosis were associated; but there was no evidence as to which preceded the other.

Doubtless, the debaters have set up and are pushing and pulling a straw man. Scleroderma is anatomically essentially a fibrosis of the skin, just as arteriosclerosis is essentially a fibrosis of arteries; in both there is more or less atrophy of the contained parenchymatous structures. Referring back to the simplest general pathologic principles, fibrosis may come about either reactive to some more or less irritative and known stimulus, or secondary to reductions of tissue bulk such as are seen in degenerations and atrophy—the release of tissue tension of Ribbert; and it is not reasonable to assign any special properties to the cutaneous organ in this respect which would immunize it to the general laws operative for others, like the arteries. Variations in the form of the fibrosis are of course to be expected in the different organs depending on anatomic peculiarity; but the basic principles and processes should operate in all. We ought therefore to grant, in the absence of any known etiologic factor, such as an arteriosclerosis that is general, or thrombo-angiitis obliterans, or a definite earlier primary acute cutaneous inflammation, etc., that in different clinical cases wherein the two are associated, either the arteriosclerosis or the fibrosis might have been primary. And surely Unna and Dinkler were drawing conclusions from observations on different clinical cases. In short, just as the causes of scleroderma are conceivably (at least until it has been proved that they are the same) various in different cases, and variously might induce either fibrosis or arteriosclerosis at first hand, so the sequence of arteriosclerosis and fibrosis in the skin should be expected to vary in different cases if they be associated. At the same time we should keep our minds open to the possibility that even arterio-

sclerosis is not a sine qua non in scleroderma, as Crocker indicates when he reports only thromboses in his histologic sections, and as appears in the case herewith reported.

SUMMARY

The hide-binding in this 15-day-old baby, probably syphilitic, dying with enteritis and meningitis, suggests sclerema neonatorum; but it is symmetrical and periarticular, and at necropsy the induration is found to be purely subcutaneous. On these and other grounds, the diagnosis of sclerema neonatorum is rejected, and the case finally placed in the general group of scleroderma without affixing any new name to this pure subcutaneous form, believing it to be of the same known nervous causation as many other cases of scleroderma.

The case may some day be valuable in that this symmetric, periarticular form of scleroderma may prove to afford a useful differential clinical diagnostic feature by pointing toward a coexistent meningitis; and if another of these rare cases should come under observation, the effort should certainly be made to obtain a sample of spinal fluid by lumbar puncture. If lumbar puncture had been done in this case, I feel justified, on the basis of the histologic examination, in estimating that the cells would have been markedly increased, and that a differential count would have shown about 40 per cent. polymorphonuclears and 60 per cent. lymphocytes.

CONGENITAL ECTODERMAL DEFECT, WITH REPORT OF A CASE*

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ROCHESTER, MINN.

This case is reported not only because of its apparently extreme rarity, but also because it may serve as a stimulus to further investigation of the factors responsible for defective development of the ectoderm. A convenient opportunity is also afforded to discuss certain phases of the function of the skin on which modern physiologists and dermatologists still disagree. Our case is the second of its kind reported in the American literature and the sixth reported in the world's literature. It stands absolutely unique, however, in the fact that the developmental defect occurred in a female; all other cases reported occurred in the male. The significance of the latter fact will be apparent from subsequent discussion. It would seem, however, that the extreme rarity of this type of case is more apparent than real. All evidence in the literature points to the fact that the extremely high grades of ectodermal defect are not excessively rare. A larger number of reported cases could undoubtedly have been classified with the group under consideration had their investigation been sufficiently complete. Nor are these cases of purely academic interest as the experience of the patients and their medical advisers attest.

Cases of ectodermal defects of a partial character, such as congenital aplasia of the teeth, hypotrichosis, or even congenital absence of circumscribed patches of skin, are no longer medical curiosities. Congenital aplasia of the teeth is reported in the very earliest medical writings and numerous references to it are found in the later medical literature. True congenital hypotrichosis is distinctly more rare, and the majority of cases reported as such are undoubtedly of the alopecia totalis type, in which the fetal hair is formed but later drops out and does not grow again. The work of Waelsch,[1] Pinkus [2] and others, and notably the careful studies of Buschke,[3] have familiarized us with true hypotrichosis. A combined absence of the teeth and hair is found in still rarer instances. Circumscribed skin defects of a congenital nature

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* From the Section on Dermatology and Syphilology, Mayo Clinic.

1. Waelsch, L.: Ueber Hypotrichosis (Alopecia congenita), Arch. f. Dermat. u. Syph. **152**:63, 1910.

2. Pinkus: Ein Fall von Hypotrichosis (Alopecia congenita): Quoted by Waelsch.

3. Buschke, A.: Klinische und experimentelle Beobachtung über Alopecia (Hypotrichosis) congenita, Arch. f. Dermat. u. Syph. **108**:27, 1911.

are reported in limited numbers. Abst,[4] in 1917, collected thirty-four cases in the literature, and added another of his own. Almost any region of the skin was involved in one or the other of these cases, but the defects were most frequently noted in the scalp.

In one group of cases of high grade congenital ectodermal defect reported in the literature there is not only a congenital absence of the teeth and a hypotrichosis, but also a total absence of sweat glands and an almost total absence of sebaceous glands. This combination gives the cases a stamp which places them in a class by themselves. To date there are only five cases of this type on record.† The first of these was reported in 1883 by Guilford,[5] an American dentist (Fig. 1). As he said, he had the pleasure of presenting a very remarkable man. The

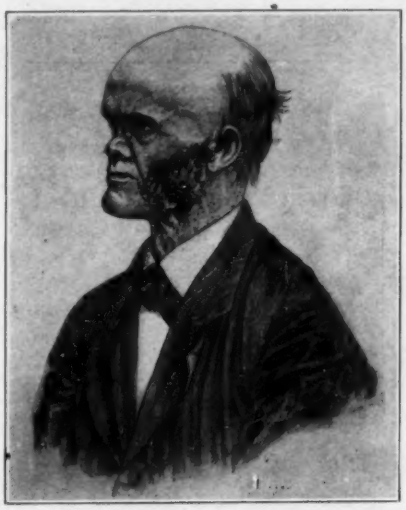

Fig. 1.—Guilford's patient. Note the prominent forehead, alopecia, and depressed nasal bridge.

patient was 48 years of age, and in perfect physical health, never having been confined by sickness for a single day. He had been edentulous from birth; he was totally lacking in the sense of smell, and almost devoid of the sense of taste; the surface of his body was destitute of the fine hair that should cover it, and he had never per-

4. Abt, I. A.: Congenital Skin Defects, Am. J. Dis. Child. **14**:113, 1917.

† Since this article has gone to press I have noted an abstract of an article by J. Strandberg on "Arrested Development of Ectoderm," in J. A. M. A. **73**:873 (Sept. 13) 1919, reporting what appears to be a case analogous to those herein described. The original case report appeared in Nord. med. Arch. **51**:1 (Oct. 18) 1918, Int. Med. Sec., No. 1. As yet I have not had access to the original artic'e.

5. Guilford, H. S.: A Dental Anomaly, Dental Cosmos **25**:113, 1883.

spired. Tendlau,[6] in 1902, reported a case presenting very much the same characteristics as that of Guilford (Fig. 2). He concerned himself chiefly, in his discussion, with the absence of sweat glands in the skin and erroneously interpreted the lack of development of the skin as an atrophy. In fact he heads his article: "Concerning Congenital and Acquired Atrophia Cutis Idiopathica," and discusses elaborately several cases of acquired atrophy of the skin. Wechselmann and Loewy,[7] in 1911, subjected Tendlau's case and two others (Figs. 3 and 4) to a most careful study. Their investigation was devoted chiefly to the mechanism of production of insensible perspiration. Christ,[8] in 1913, added a further case and discussed the relationship of the various ectodermal structures to one another in the animal kingdom. To this classic group I wish to add our own case.

Fig. 2.—Tendlau's patient. Note the features characteristic of congenital ectodermal defect. Mustache and beard well developed as in all other male patients.

REPORT OF CASE

Case 240873, I. C., a woman, aged 21, born in England, stenographer, came to the clinic primarily to have some plastic work done on her nose, which was rather flat in the bridge.

Examination.—Examination revealed a person of a rather frail build, but on the whole presenting a fair average physical development, excepting only that of the skin and its appendages. The skin was exceptionally fair, smooth, thin, pli-

6. Tendlau, B.: Ueber angeborene und erworbene Atrophia cutis idiopathica, Virchows Arch. f. path. Anat. **167**:465, 1902.

7. Wechselmann, W., and Loewy, A.: Untersuchungen an drei blutsverwandten Personen mit ektodermalen Hemmungsbildungen, besonders des Hautdrüsensystems, Berl. klin. Wchnschr. **2**:1369, 1911.

8. Christ, J.: Ueber die kongenit. ektodermalen Defekte und ihre Beziehungen zu einander; vikarierende Pigment für Haarbildung, Arch. f. Dermat. u Syph. **116**:685, 1913.

able and dry, and showed the superficial veins plainly. There was a notable absence of the lanugo hair on all parts of the skin, and only a few straggling hairs were seen on the scalp. The genitalia and axillae were practically hairless. About the labionasal folds and on both upper and lower lids was a number of soft split-pea sized papules strongly suggesting small sebaceous cysts or milia. On the back were a few papules and pustules and the scar of an intramuscular

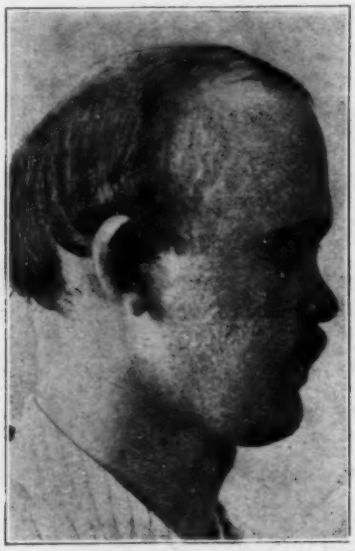

Fig. 3.—Wechselmann's patient. Note the characteristic profile of patient practically duplicating that of our patient in Figure 6.

Fig. 4.—Another patient of Wechselmann.

arsphenamin slough. The nails of the hands and toes presented uniform fine longitudinal furrows. The vermilion border of the lips was poorly defined. On physical examination it was found that both jaws were devoid of visible teeth. The roentgen-ray report, however, stated that several "fragments" of teeth could be seen in the right upper jaw. The patient gave a history of having had several defective teeth removed from her upper jaw; she had never to her

knowledge had any teeth in the lower jaw. The rhinolaryngologist reported an atrophic rhinitis, and a destruction of the turbinates on both sides with much pus and crusting. No adenopathy could be determined. The forehead was unusually prominent and the bridge of the nose flat (Figs. 5 and 6). Aside from these two features, there were no osseous changes which even remotely suggested any of the osseous stigmata of lues hereditaria. The nervous mechanism was apparently normal, only a slight hyperactivity of the knee jerks being noted. The mentality was fair, probably somewhat above the average. The viscera were normal.

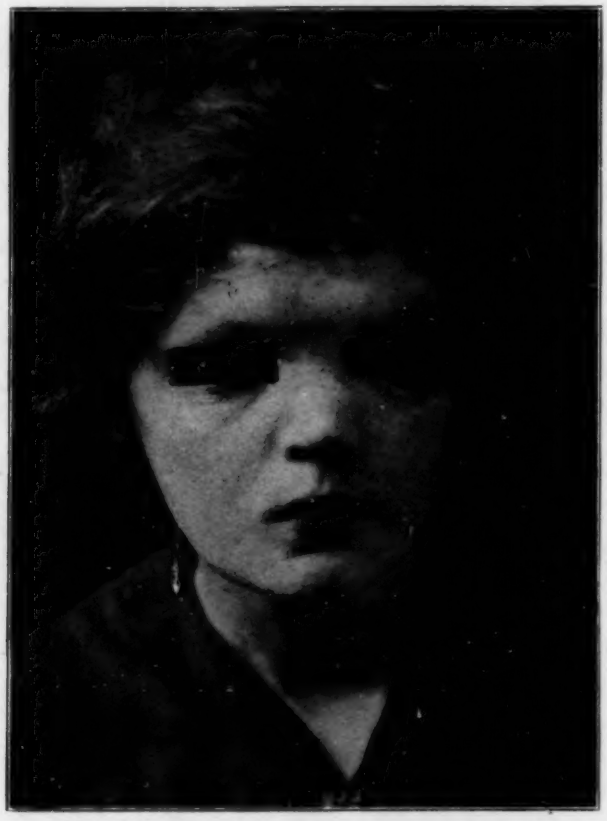

Fig. 5.—(240873.) Author's patient. The scalp is covered by a wig, which hides the almost total alopecia.

History.—The patient gave a history of two aunts and one uncle having died of tuberculosis; one aunt suffered from epileptic attacks and died insane. The father was said to have had syphilis. There was no history of any other member of the family having been afflicted as was our patient. One sister died at 1½ years of age; one brother and one sister were living and perfectly well.

The patient began to have trouble with her nose when she was 9 months old. She had never perspired even in the hottest weather. She had suffered

from a variety of ailments all her life, but a definite diagnosis of her condition had not been made. For many years she had been taking medicine by mouth regularly, but had never known exactly for what purpose. She had had two salvarsan injections, evidently on the supposition that she was afflicted with heredo syphilis.

Histologic Report.—The patient, after some persuasion, submitted to biopsy. The tissue was taken from the outer aspect of the left arm; a piece at least three-fourths inch in length was excised from deep in the subcutaneous fat. While we realize that in theory the total absence of hair, sebaceous glands, and

Fig. 6.—Lateral view of author's patient.

sweat glands can be demonstrated only by an examination of a number of pieces of tissue from different parts of the body, such an examination in this case was out of the question.

For purposes of comparison an exactly similar piece of tissue was taken from the skin of the outer side of the arm of a normal adult female (surgical amputation (Fig. 7). In order to identify and compare the anlagen of the pilosebaceous and sudoriferous systems in the human embryo, a specimen was taken from the outer sides of the left arms of human embryos measuring 5 cm., 7 cm., 10 cm. and 25 cm., and from a fetus at 7 months.

The epidermis and cutis of the patient were absolutely normal as compared with a section of normal skin, except for the total absence of hair follicles, sebaceous glands and sweat glands. The cutis in the case of ectodermal defect displayed a normal vascularity, made artificially conspicuous by the absence of the usual association with pilosebaceous and sudoriferous structures. There were no increase or diminution in the collagenous or elastic tissue of the cutis, no signs of an inflammatory process, no abnormal elongation of the occasional rete pegs, and no cellular infiltration of any type. The sections showed the tissue far into the subcutaneous fat. There were no cell inclusions, either solid or tubular, of the type generally recognized as anlagen of sweat glands in the familiar picture of syringocystoma (Fig. 8).

The comparison of the skin of the fetal arm with that of our patient indicated that in the site from which the specimen was excised there are in late fetal life and immediately after birth many lanugo hairs with their associated sebaceous glands, and numerous sudoriferous glands which have not quite reached their final development by the seventh month of fetal life (Fig. 9). The various structures representing the anlagen of these glands, as illustrated in Figures 10 and 11, were carefully searched for in the material from our patient, but as seen in the photomicrograph (Fig. 8) they were totally absent.

In the histologic material, therefore, we find that the pathologic process in such a patient is neither an atrophy nor a simple rudimentary development, but consists in a total absence of pilosebaceous and sudoriferous systems and their anlagen, at least in adult life. Whether at some stage in the embryonic development in our patient such anlagen appeared only to undergo regression or to be destroyed, it is of course impossible to state with positiveness from an examination of a specimen removed from the adult.

DISCUSSION

Wechselmann believes that congenital ectodermal defects of the type presented by our case are familial and inherited, and are analogous to the type of hereditary transmission seen in hemophilia and hemeralopia. The analogy may be allowed in so far as these diseases are transmitted through the female, but the defect need not always be transmitted to the male, as our case plainly shows. In other words, these congenital defects are not always recessive in the female. Whether or not hemophilia and hemeralopia are always recessive in the female is still a problem, despite the careful studies of Bulloch and Fildes.[9] The familial transmission of the ectodermal defects is well shown by a family tree compiled by Wechselmann for his cases. From these findings he wishes to prove the recessive character of the ectodermal defect in the female. Our own case evidently disproves this supposition. Christ's case apparently also bears out the theory that this condition is familial. A familial history was not elicited in our case, possibly because of the insufficiency of the data obtainable. Most of the reported cases of ectodermal defect, like those of hemophilia

9. Bulloch and Fildes, quoted by Osler, W., and McCrae, T.: Modern Medicine, Philadelphia, Lea and Febiger **4**:715, 1915.

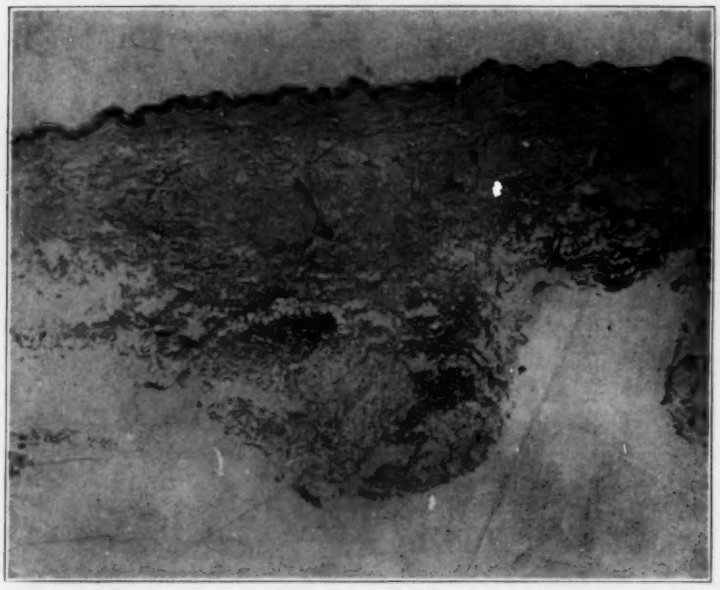

Fig. 7.—Section from the arm of a healthy woman. Note the presence of sweat glands and the hair follicle.

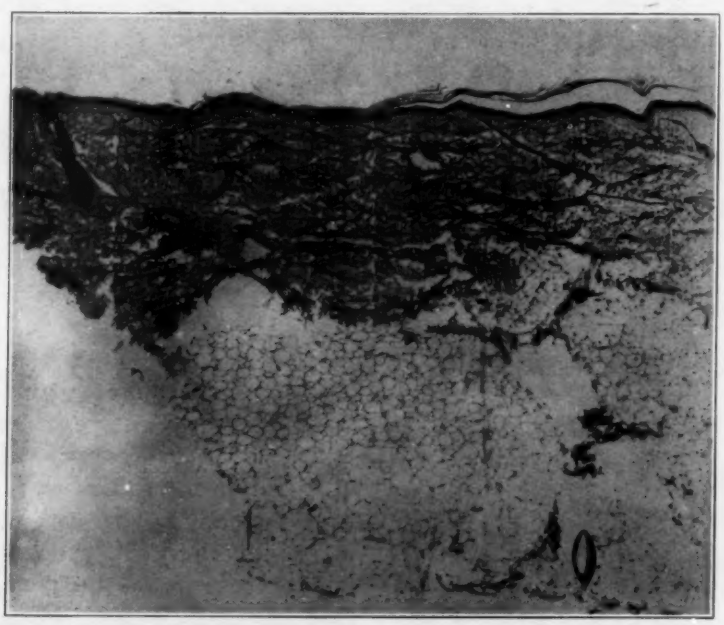

Fig. 8.—Section from the arm of our patient, showing total absence of the sudoriferous and pilosebaceous systems.

and hemeralopia, are in the families of exceptionally fertile women. In Guilford's case the mother of the patient had married at 16 and died at 40, and during that time had given birth to twenty-one children. The mother of Tendlau's patient gave birth to fifteen children in two marriages, and the mother of Wechselmann's patients also bore fifteen children. This fecundity of the mothers of patients is not apparent in Christ's case nor in our own, each of these mothers having given birth to four children.

Syphilis as a causative factor deserves special attention. Familiarity with this striking group of cases, which present practically identical features, would hardly warrant an assumption of activity of the *Spirochaeta pallida* as it appears in the ordinary case of syphilis hereditaria. The activity of the spirochete in ectodermal defect could be explained only by assuming that the injurious influence had been suddenly exerted at the time of the third or fourth month of embryonal existence and had then rapidly subsided, which would seem rather unlikely. Christ reports that his patient was without doubt infected with syphilis. He does not say on what grounds he bases this assumption; the Wassermann reaction on the patient's blood was negative on one occasion. In discussing his case, he admits that he was at first inclined to believe that the developmental defect was of syphilitic origin. On discovering the familial tendencies, however, and on careful consideration of our present day conception of the genesis of congenital syphilis, he later came to the conclusion that syphilis is not a causative factor. In our case the history is rather suggestive of a syphilitic factor. The patient's mother told her that the father had acquired syphilis while serving in the British navy. The patient herself had been treated for syphilis, but evidently chiefly on the basis of the changes found in the nose, and probably by some one ignorant of the existence of the type of congenital defect under consideration. There were no other signs suggestive of syphilis hereditaria except those equally characteristic of this group of defects. The Wassermann test of the blood was negative. If syphilis was present in Christ's case or in our own, it was probably only incidental.

Guilford does not discuss the pathology of the skin of his patient. Tendlau, in a description of the skin of his patient, speaks of an atrophy, and in his report elaborately discusses other cases of cutaneous atrophy. In one paragraph he carefully notes, however, that nowhere does he see any regressive changes such as atrophy. Moreover, he concedes that there are no rudimentary nor partially developed sweat glands to suggest that the anlagen of these structures had ever existed. Wechselmann insists that there is no sign of atrophy in the skin but that it resembles the embryonal type. In our case there were no signs of regressive changes in the skin. There was an entire

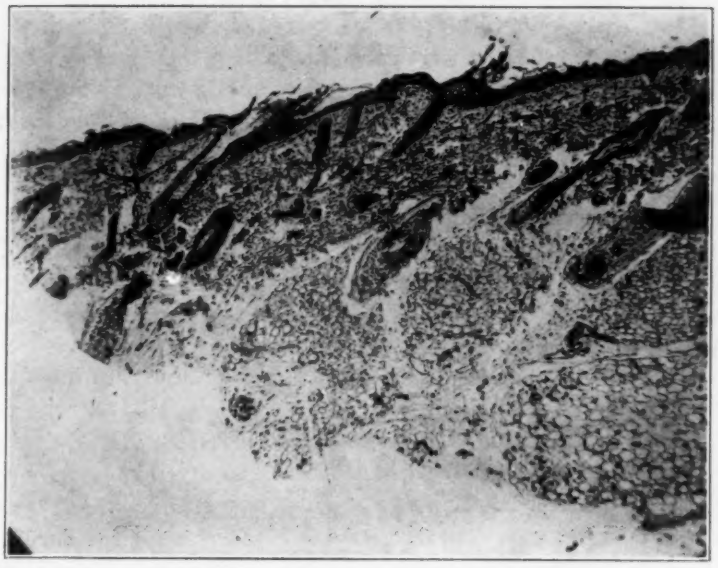

Fig. 9.—Section from the arm of a 7-months-old fetus. The sweat glands and hair follicles are not yet fully developed, but they show plainly.

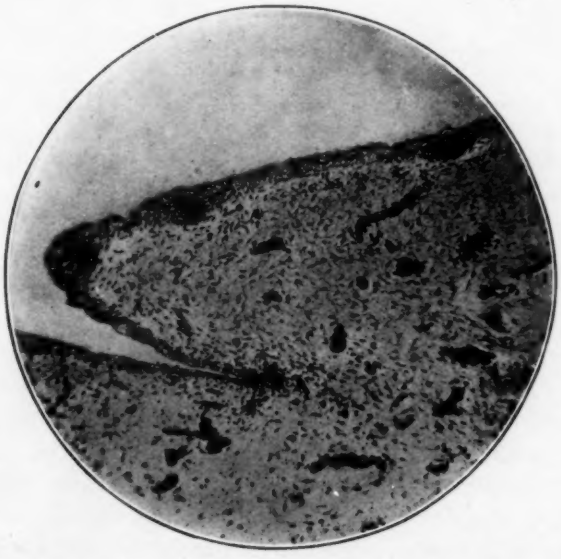

Fig. 10.—Section from the arm of a 10 cm. fetus. Note the epithelial buds.

absence of such cell inclusions as might warrant an assumption that embryonal vestiges of lanugo hair and sweat glands had ever existed. A striking feature in this group of ectodermal defects is the hypotrichosis described by all observers. Our patient's scalp contained only a few tufts of straggling, dry hair. The genitalia were also practically devoid of hair, and the lanugo hair was absent over the entire body. The aplasia of the teeth has been noted in all cases, and such teeth or dental "emboli" as there are, occur in about the same part of the upper jaw as in our case, probably replacing the incisors and canines. In the lower jaw in all cases studied by roentgen ray, teeth and the anlagen of teeth were completely absent. Wechselmann's article is illustrated by photographs of plaster models of the jaws, and copies of his illustrations are here reproduced (Fig. 12). Such teeth as there are, are broad at the base and pointed at the tip, showing a close resemblance to the canine teeth. They are widely separated. Our patient had never had a tooth in her lower jaw, and the upper teeth were imperfect and had been removed. Roentgen-ray examination showed "fragments" of teeth in the right upper jaw.

The gross characteristics of the skin are in all instances very similarly described by the various authors. The skin is said to be thin, pliable, dry, unusually white and transparent, with marked prominency of the superficial veins. The mouths of the follicles are distinctly visible in some locations, but not in others.

Wechselmann noted a few milia about the nose in his cases. These general characteristics of the skin were apparent in our patient, and we also noted the milia about the nose. Christ describes a condition in the nasal and orbital region of his patient, which reminded him of a xeroderma pigmentosum; Touton, who saw this patient, was also reminded of the same disease, but only in a mild form. This condition was not described in any of the other patients, nor was it seen in our own.

The nails of Tendlau's patient were well developed. Wechselmann notes that in one of his patients the nails were normal. A definite trophic deformity of the nails was noted in our patient; its etiologic basis is unexplained.

Atrophic rhinitis was present in the patients described by Tendlau, Wechselmann and Loewy, and Christ. Guilford does not describe this condition, but he specially mentions the fact that his patient had lost the sense of smell and largely that of taste. In our patient a well marked atrophic rhinitis, with atrophy of the mucous membrane of the pharynx and larynx, was noted, the latter producing a distinct hoarseness. In addition to this a nasal examination revealed destruction of the turbinates on both sides with much crusting, probably a result of secondary infection.

The vermilion border of the lips in our case was not so sharply defined as in the normal person. The detail is not specifically noted in any of the other cases.

Prominent frontal bosses and a depressed nasal bridge were the chief bony changes, as all the pictures well show. Our patient came

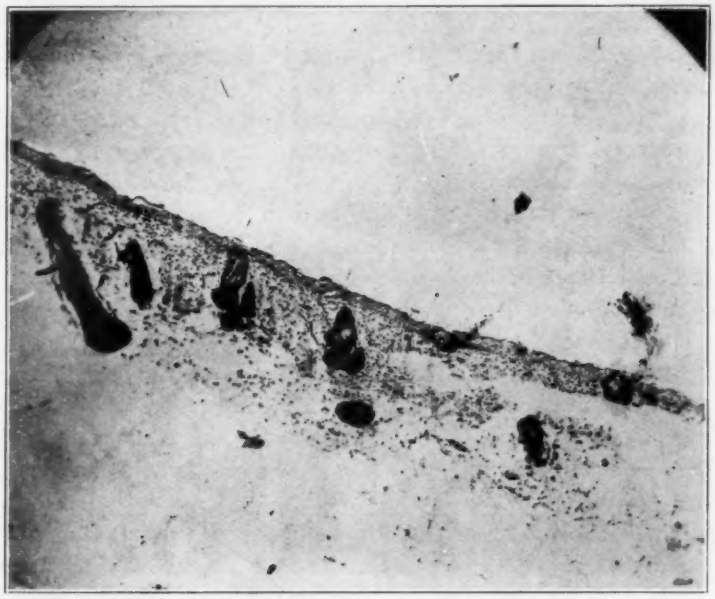

Fig. 11.—Section from the arm of a 25 cm. fetus. The immature sweat glands and hair follicles are clearly shown.

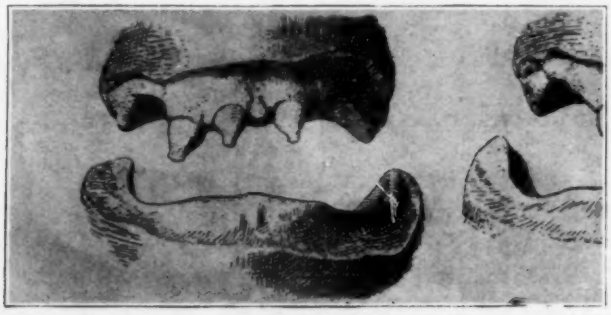

Fig. 12.—An illustration of Wechselmann's plaster model of the jaws and dental "emboli" of one of his patients.

for treatment primarily to have the shape of her nose improved. A plastic operation was attended by a considerable degree of success.

The feature which distinguishes this group of cases of ectodermal defect from all others, is the total absence of sweat glands and the

almost complete absence of sebaceous glands. On this defect are based the symptoms which give them their special practical and theoretic interest. All the patients state that they do not perspire even in the hottest weather, and to this our case is no exception. Guilford's patient was a cobbler by trade and lived in a farming community. During the summer months he worked with various farmers as a field hand. Whenever so employed it was always necessary to engage a boy to carry water from some neighboring brook or well to pour over him to keep his clothing wet. If the arrival of the water happened to be delayed, he became weak and collapsed from the heat. Tendlau's patient wore a wet shirt during the hot months. This he kept continually moist under a pump. When the heat became too great he frequently collapsed. This patient from childhood had been in the habit of eating only cold meals during the hot weather, because he had noticed that he became feverish on the ingestion of hot foods. A similar story is told by the other patients, and all of them were forced to change their original occupation because they could not tolerate heat. Because of these peculiarities one of Wechselmann's patients was temporarily regarded as a malingerer and the other as suffering from phthisis. Our patient, while she could not perspire, suffered less hardship probably because as a woman she was less subject to exposure and hard physical work.

The mental condition of Guilford's patient was reported as normal; the patients of Tendlau, Wechselmann and Loewy, and Christ were of a distinctly inferior mentality; our patient was of average mental acuity, if not somewhat above it.

Congenital ectodermal defect apparently does not interfere with the longevity of the patient. Guilford's patient was 48 when his case was reported. Wechselmann studied the patient originally described by Tendlau when the patient was 57 and in good general health.

Much interesting experimental work has been done on these cases and much light thrown on the physiology of the skin. Vierordt[10] estimates that the relative values of different modes of heat loss are about as follows:

VALUES OF DIFFERENT MODES OF HEAT LOSS

Loss by	Per Cent.
Urine and feces	1.8
Expired air; warming of air	3.5
Vaporization of water from the lungs	7.2
Evaporation from skin	14.5
Radiation and conduction from skin	73.0

Of course, these percentages vary somewhat with the surroundings, but they tend to emphasize the importance of the skin as a heat regu-

10. Vierordt: Quoted by Howell, W. H.: A Textbook of Physiology, Saunders, 1913, Ed. 5, p. 933.

lating organ. While it is true that the lung normally dissipates the greater part of the heat in some of the lower animals, and does so vicariously very effectually in others, in man this function of the skin is apparently vicariously taken up by the lung in a very unsatisfactory manner. The cases of ectodermal defect previously reported have shown the relationship that exists between the lungs and the skin as heat regulating organs, and have offered ideal conditions for experimentation. Tendlau and Loewy have definitely shown the importance of the skin as a heat regulator and the inability of the lungs vicariously to assume this function in man.

On one occasion Tendlau's patient, on drinking a pint of milk at 104 F., was observed to undergo a rise of temperature of 0.4 degrees within five minutes, followed by a further rise of 0.9 within the next fifteen minutes. The temperature then gradually dropped to its first level. Very noticeable were also the rises in temperature following exposure to the sun. On a perfectly quiet day the temperature rose at the rate of 1.8 F. every ten to fifteen minutes. This rate was increased by physical exertion, extreme degrees of heat, and an increased humidity. On one occasion the patient was exposed at 12 o'clock noon while the air temperature was 89.6 F. After an exposure of twenty minutes to the sun the body temperature rose 3.7 F. Simultaneously mild, subjective symptoms appeared, such as are seen in a febrile person; that is, slight restlessness, sensation of heat, and headache. Similar experiments were repeated frequently, always with the same results. The highest temperature observed on this patient was accidentally obtained on a hot day. It rose on this occasion to 105.4 F.

Tendlau, by observations on his patient, was reminded of the behavior of poikilothermic animals. He, therefore, determined if possible to obtain the temperature changes in the opposite direction by applying cooling procedures. Prolonged cold baths were used, but no abnormal reduction in temperature was observed. Similar experiments were carried out by Loewy[11] on his patients with similar results. Both observers carefully watched the respiratory function in the persons in whom an increased amount of heat dissipation was made necessary by the experiments. Tendlau's patient was carefully examined by Zuntz relative to his respiratory behavior under these conditions. Zuntz found an increased respiratory volume and rate at all times, analogous to the results obtained in nonsweating animals. Loewy confirmed these findings by further experiments.

11. Loewy, A., and Wechselmann, W.: Zur Physiologie und Pathologie des Wasserwechsels und der Wärmeregulation seitens des Hautorganes, Virchows Arch. f. path Anat. **206**:79, 1911.

In an endeavor to determine the absorbing power of the skin of such a patient Tendlau employed two methods. In both instances he used a potassium iodid ointment, which in all probability does away with the objection that some of the drug was absorbed by inhalation. When this ointment was applied loosely under a bandage, no absorption of the potassium iodid occurred. On the other hand, when the ointment was rubbed into the arm and the arm bandaged, potassium iodid could be demonstrated in the urine in about six hours, which is no marked variation from the normal. Tendlau's first experiment tends to show that a certain amount of friction is necessary to produce any absorption. His experiments did not determine whether or not a certain amount of trauma is necessary to produce absorption, because it is impossible to say after thorough friction that the skin has not been sufficiently traumatized to produce a histologic break.

The mercurial inunction experiments performed by Wile and Elliot[12] on patients, and on rabbits by Schamberg,[13] apparently definitely settle the fact that there is absorption through the skin when ointments are rubbed into it. Many other observers believe that oily preparations are quite readily absorbed through the skin. Because of the total absence of sweat glands and the probable total absence of sebaceous glands on the arm of Tendlau's patient, the findings in his inunction experiments constitute experimental evidence that the glands of the skin are certainly not essential and in all probability not necessary to the absorption of drugs in the normal person.

Merely as an illustration of the wide divergence of opinion on the mode of absorption of substances through the skin, Landois,[14] on the one hand, believes that the mercury globules pass into the hair follicles and ducts of the glands, where they are affected by the secretion of the glands, and transformed into a compound capable of absorption. This view is supported by Neumann,[15] and Auspitz,[16] and concurred in by Duhring,[17] Robinson,[18] Stelwagon[19] and others. On the other

12. Wile, U. J., and Elliot, J. A.: Mode of Absorption of Mercury in the Inunction Treatment of Syphilis. Preliminary Report, J. A. M. A. **68**:1024, 1917.

13. Schamberg, J. F., Kolmer, J. A., Raizess, G. W., and Gavron, J. L.: Experimental Studies of the Mode of Absorption of Mercury When Applied by Inunction, J. A. M. A. **70**:142, 1918.

14. Landois, L., and Stirling, W.: A Textbook of Human Physiology, Ed. 4, Philadelphia, Blakiston, 1891, p. 571.

15. Neumann, quoted by Stelwagon: Diseases of the Skin, Philadelphia.

16. Auspitz: Ibid.

17. Duhring, L. A.: Ibid.

18. Robinson: Ibid.

19. Stelwagon, H. W.: Diseases of the Skin, Philadelphia, Saunders, 1914, 1250 pp.

hand, Rindfleisch,[20] Fleischer,[21] Voit[22] and others believe that the particles of mercury pass directly through the epidermis. The latter view appears to be most strikingly supported by the observation of Voit, who found globules of mercury between the layers of the epidermis and in the corium of an executed criminal, into whose skin mercurial ointment had been rubbed previously.

With reference to the question of the mechanism of perspiration, on which these cases throw some light, physiologists are well agreed that sensible perspiration is a true secretion, a product of the sweat glands. On the production of insensible perspiration, however, they have disagreed ever since the discovery of the sweat glands by Malpighi and Stenson. The arguments pro and con brought forth by various observers in support of their views need not be discussed here. Suffice it to say, that in a considerable number of modern textbooks on physiology and dermatology a discussion on the mode of production of the insensible perspiration is either entirely omitted or no decided stand is taken with regard to it.

The experiments undertaken by Loewy on Wechselmann's patients with a total absence of sweat glands tend to substantiate the marked importance of the physical process of transudation as a factor in the loss of moisture by the body under ordinary conditions. By carefully controlled experiments Loewy found that under conditions in which only insensible perspiration could be given off, the two patients with ectodermal defect eliminated a minimum of 123 gm. and 242 gm., and a maximum of 436 gm. and 600 gm., respectively, as compared with an average minimum of 112 gm., and an average maximum of 700 gm., in five healthy persons. This result substantiates the fact that so long as the water is given off in an insensible manner, the quantity of water given off by the healthy person is no greater than that given off by those without sweat glands. The sweat glands, therefore, are not perpetually active, but only become so under special stress. Diffusion and not secretion is, therefore, the primary method of water elimination through the skin. Loewy further demonstrated on his case, by the method of Aubert, that there is a point at which perspiration is still insensible but at which the sweat gland takes some part in its production. This point varies in different persons and also on different parts of the body in the same person. It was impossible to carry on physiologic experiments on our patient, largely because of her indifference.

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20. Rindfleisch: Ibid.

21. Fleischer: Ibid.

22. Voit, V., quoted by Landois, L., and Stirling, W.: A Textbook of Human Physiology.

CONCLUSIONS

1. There exists a group of typical cases of high grade congenital ectodermal defect, the extreme rarity of which, suggested by the scanty literature, is probably more apparent than real.

2. The patients in this group all present a facies very closely resembling that of heredosyphilis.

3. The influence of syphilis in the production of these congenital defects is probably nil.

4. The reported cases of this group of ectodermal defects have exhibited a total absence of sweat glands, an almost total absence of sebaceous glands, a hypotrichosis with absence of lanugo hair, and a dental aplasia.

5. Such patients suffer from a disturbance of the heat regulating mechanism, dependent on the inability of their skins to eliminate the necessary amount of water to keep the temperature level constant under varying external conditions.

6. Valuable contributions to our conceptions of certain phases of the physiology of the skin have been made by experiments on patients with this type of congenital defect.

The writer wishes to acknowledge his indebtedness to Dr. J. H. Stokes, Chief of the Section of Dermatology and Syphilology, for assistance in the arrangement of this material.

SYPHILIS OF THE KIDNEY, URETER AND SUPRARENAL

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The establishment of syphilitic disease of the kidneys on a firm clinical basis is of considerably later date than any of the other syphilitic visceropathies. This is no doubt true because of the great difficulty of differentiating between the end-result of syphilitic disease and the common forms of fibrosis of the kidneys, whether the latter be produced by old age, disease or both. Moreover, the differentiation between renal irritation due to syphilitic processes and the various other types of nephritis constitutes a second difficulty in establishing a pathologic diagnosis. That nephritis occurred in the course of a syphilitic's life, however, was recognized by clinicians before the establishment as an entity of true syphilitic renal disease. This nephritis, however, was interpreted as the effect of mercury rather than as in any way related to the disease process. In 1859, Rayer placed syphilitic kidney disease on a firm basis. After him Virchow, Perroud, Fournier, Wagner[1] and others contributed undoubted pathologic and clinical evidences of syphilitic disease of the kidneys. In our own country the subject has received but little attention. LaFleur[2] contributed, however, in 1896 an excellent monograph on the subject, and case reports are recorded by Greene,[3] Fordyce[4] and Montgomery;[5] and in England by Parkes-Weber and Bowlby.[6] In France the subject has received greater study than elsewhere, and Mauriac's[7] work in particular stands out today as the accepted classic on the subject.

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1. Wagner: Ueber parenchymatose Nephritis bei Lues, Munch. med. Wchnschr. **492**:2093, 1902; Deutsch. Arch. f. Klin. Med., Vol. 28, 2994.

2. La Fleur: Syphilitic Nephritis, Trans. Assn. Am. Physicians **11**:299, 1896.

3. Greene: Arch. f. Dermat. u. Syph., 370, 1899. Syphilis of the Kidney, Med. News **71**:253, 1899. Syphilis of the Kidneys, J. Cutan and Gen.-Urin. Dis. **16**:12, 1898.

4. Fordyce, L. A.: Gumma of the Adrenal, New York State M. J. (Nov.) 1915; On the Occurrence of Nephritis in early Syphilis, with the Report of a Case Terminating Fatally, J. Cutan. and Genito-Urinary Dis. **15**:151, 1899.

5. Montgomery: Acute Nephritis in the Early State of Syphilis, Occidental Med. Times **15**:196, 1901.

6. Bowlby: Gummatous Enlargement of the Kidney, Arch. f. Dermat. u. Syph., 310, 1899; Gummatous Disease of the Kidney Causing a Large Renal Tumor, Trans. Path. Soc., London **48**:128, 1896.

7. Mauriac: Memoire sur la Syphilose du Rein, Reprint from Arch. Gen. de Med., 1889.

As a result of syphilitic infection, we recognize today, transient albuminuria, acute parenchymatous nephritis, chronic interstitial nephritis, gumma of the kidney, amyloid kidney and paroxysmal hemoglobinuria.

SYPHILITIC ALBUMINURIA

From time to time in the course of an active syphilis, occasional albumin has been described as occurring in the urine. The early interpretation of such albuminuria, particularly as held by Wells and Blackall in England and Bunz in Germany, was that it was due to mercurialization. That this may be true is shown by the studies of Welander[8] and Heller. It is now established, however, beyond a doubt that transient albuminuria may occur in patients who have never received mercury, probably associated with the extensive anemia so frequently seen, particularly in the early period of the disease. The breaking down of hemoglobin, as has been shown clinically and experimentally, gives rise always to albuminuria, and occasionally even to a low grade of nephritis.

Symptoms. — There are practically no symptoms associated with transient albuminuria. The finding is usually an accidental one. When, however, the cases persist, a chronic nephritis may supervene with the symptoms characteristic of this condition. This is exceptional and the transient albuminuria is usually benign, subsiding either spontaneously or under the influence of treatment.

ACUTE PARENCHYMATOUS NEPHRITIS (NEPHRITIS SYPHILITICA PRAECOX)

Of all types of syphilitic kidney disease, this is the most easily recognized, and has received the greatest attention from clinicians. This type of nephritis was studied pathologically first by Wagner, Virchow and Beer, and clinical cases are reported by Mauriac, Dieulafoy and Plicque,[9] LaFleur, Doederlein,[10] Stepler,[11] Vulpian, Hudelo, Darier, Karvonen,[12] Munk,[13] Montgomery, Fordyce, Stokes[14] and

8. Welander: Klinische Studien über Nierenaffektionen bei Syphilis, Arch. f. Dermat. u. Syph. **37**:19, 323, 1896.

9. Dieulafoy and Plicque: Syphilis of the Kidneys, Syphilitic Nephritis, Forms and Treatment of Syphilis of the Kidneys, Internat. Clinics, Philadelphia **9**:116, S. 111, 1899.

10. Doederlein: Ein Beitrag zur Kenntniss der syphilitischen Nephritis, München. med. Wchnschr. **43**:976, 1896.

11. Stepler: Nephritis Syphilitica Praecox, Wien. klin. Wchnschr. **13**:989, 1900.

12. Karvonen: Die Nieren Syphilis, Monograph, Berlin, L. Karger, 1901.

13. Munk: Syphilitische Nierenkrankheiten, Dermat. Wchnschr. **58**:350, 1914; Dermat. Ztschr. **21**:591, 1914.

14. Stokes, J. H.: Acute Syphilitic Nephritis, from the Standpoint of Diagnosis and Salvarsan Treatment, with Report of a Case, J. A. M. A. **66**:1191, 1916.

others. The clinical phases of this type of nephritis are covered in an article which appeared in 1916, together with a case report by Stokes. One such case has come under my observation at the University Hospital clinic.

Symptoms.—For the most part, all the cases have been practically identical in their onset, the largest majority occurring with the exanthem in the first few months of the infection. Audry's[15] case, however, occurred in the preroseolous period, antedating other secondary manifestations. The first symptom noted, as a rule, is edema. It occurs either brusquely or insidiously and may be localized on the face; more frequently, however, it is noted around the eyelids and face and around the lower extremities, gradually increasing until a general anasarcous condition is reached. Effusion into the serous membranes with hydrothorax, ascites and pericarditis has been noted in a few cases (Parkes-Weber,[16] Mauriac). Occasionally the onset may be accompanied with slight headache, although this is not nearly so common as in other forms of acute nephritis. The urine is usually dark, somewhat decreased in amount with a very high specific gravity, and is characterized principally by an enormous albuminuria, varying from 1 or 2 gm. to 20 or 30 gm. per liter. Fournier speaks of a case in which 110 gm. of albumin were eliminated daily. In one of Chantemesse's cases 53 gm. per liter were eliminated. The sedimented urine contains a large number of granular, hyaline and blood casts, and there are occasionally leukocytes and red blood cells. Oliguria, at times even anuria has been noted. Associated symptoms are dyspnea and an extraordinary pallor. The other symptoms are the same as those which accompany acute toxic or infectious nephritis. Thus, anorexia, vomiting and epistaxis have been mentioned as occurring in a few cases. A previously damaged kidney may unquestionably be a factor in the development of some cases. I have seen one such case in a woman, aged 25, who in the early months of her infection and while under active treatment developed acute fulminating symptoms, marked oliguria and enormous increase in albumin, the rapid onset of cyanosis and uremic convulsions. She died within seven days. The postmortem findings showed an acute parenchymatous nephritis, superimposed on an old interstitial nephritis. An additional interesting finding was acute arsenical poisoning in the liver, due to arsphenamin.

Course.—Unrecognized, this type of nephritis is apt to be fulminating, death occurring within a short time with symptoms of uremia and

15. Audry: Nephrite et chancre syphilitiques, Ann. d. Dermat. et d. Syph. **3**:299, 1912.

16. Weber: Nephritis with Ascites, Hydrothorax and General Edema, Edinburgh M. J. **10**:348, 1913.

coma. While not so common as in the interstitial form, uremic convulsions have been noted in some instances. Occasional spontaneous regression may occur in cases which escape diagnosis. Such cases, however, are apt to recur or become chronic in type. Death may occur in a few days, as in cases recorded by Vulpian and Wickham. In the case under my care only seven days elapsed from the outset of symptoms until death occurred. In other cases, months and even years may elapse before exitus, as in the case reported by Fordyce. Where the condition has been recognized and treatment instituted, the recovery is apt to be as abrupt as was the onset, the edema rapidly subsiding, the albumin decreasing day by day, associated with the increase in the urinary output and complete recovery occurring within a few weeks. A number of cases are reported in which a trace of albumin was constantly found, consistent with apparently good health.

Diagnosis.—The diagnosis of acute parenchymatous nephritis due to syphilis depends on three main factors: (1) the absence of any other cause to account for the disease; (2) the onset coincident or nearly so, with the exanthem; (3) the rapid disappearance of albumin from the urine on the administration of antisyphilitic treatment. To these factors may be added the history of a recent syphilitic infection and the positive Wassermann test. The cases resemble most closely the nephritides of the scarlatinal type. These, however, are seldom associated with so high an albumin content and many authors point to this factor as the most distinguishing characteristic of the disease. According to Munk, the presence of double refractive lipoids occurring as droplets in the urine is of importance in differentiating this type of nephritis from the nonsyphilitic. Stokes reported the presence of such lipoid droplets in his case, but the same finding in nonsyphilitic cases is reported by Stengel and Austin, which seems to indicate that the presence of such lipoids is not pathognomonic of syphilis.

Prognosis.—The prognosis in the main is good and may be said to be dependent on the early recognition of the condition as due to syphilis. Where cases have been allowed to progress, however, for weeks and even several months before the diagnosis has been reached, the prognosis for life, although not bad, is doubtful for cure, due to the rapid destruction of the parenchyma.

Treatment.—Authors are unanimous in attributing marked beneficial results in acute syphilitic kidney to thorough mercurialization. When it can be definitely established that the renal irritation is not the result of mercury itself this drug should be pushed to the limit. That mercury can well be combined with arsphenamin with marked benefit has been shown by Stokes, and undoubtedly both drugs should be used as soon as the diagnosis has been established.

SYPHILITIC INTERSTITIAL NEPHRITIS (SYPHILITIC CONTRACTED KIDNEY)

The diagnosis of syphilitic cirrhosis of the kidney presents even greater difficulty than the other forms of syphilitic renal disease. This must be apparent when one considers that the pathologic picture, namely, an interstitial nephritis, is in no way different from interstitial nephritis from other causes. Moreover, the clinical and urinary pictures are but little different from those presented by the usual contracted kidney of arteriosclerosis and chronic interstitial nephritis. For the most part both kidneys are involved. There may be, and frequently is, an associated amyloid disease, and as has been noted before, the interstitial variety may be part of a gummous involvement of the kidney tissue. A point of considerable help in the diagnosis, however, is the frequent association of interstitial syphilitic nephritis with other syphilitic visceropathies which are easier of diagnosis.

Symptoms.—As a rule, the onset is insidious, indeed, as in interstitial nephritis, an advanced degree of change may be present before the disease makes itself known to the patient or to the physician. The accidental discovery of albuminuria in routine examinations is often the first clue to the fact that the kidneys are diseased. Headache, dizziness and disturbances in vision may occur, but are less common than in other forms of interstitial nephritis. Neumann has reported retinal hemorrhages in one case, and a marked albuminuric retinitis is reported as occurring in one of Wagner's cases. The urine is usually increased in amount at the outset, and as in other forms of interstitial nephritis, a marked polyuria is frequently found. According to Neumann, this is not so marked, however, as in the nonsyphilitic forms. Later in the course of the disease and with approaching exitus, the urine is markedly diminished in amount. Albumin is found in small amounts only, except in rare cases such as reported by Bartels.[17] The specific gravity is low and the urine rather pale in color. Urea and uric acid are decreased below the normal. Cylindruria is not so marked a symptom as in the acute parenchymatous form, but cases occur perhaps more frequently in the syphilitic type of interstitial nephritis than in other forms. The casts are usually hyaline and occasionally epithelial. With the associated amyloid degeneration, waxy casts are not infrequently found. Dropsy occurs but usually as a later manifestation. The frequency of other visceral changes, particularly those occurring in the liver, undoubtedly accounts for the dropsical condition in a number of cases in which it otherwise might not have occurred. According to Neumann, catarrh of the respiratory

17. Bartels: Handbuch der Spez. Path. u. Therap. (Ziemssen), Vol. 9, p. 253.

tract is more common in syphilitic interstitial nephritis than in the other forms. This is to be accounted for on the basis of the general syphilitic condition and general lowered resistance rather than on the type of the nephritis. Enlargement of the heart and moderate to advanced arteriosclerosis occur in a majority of the cases and may be said to be confusing rather than helpful points in the diagnosis. The blood pressure is increased depending on the arterial change. Although it is mentioned by some that the blood pressure is less likely to be raised in the syphilitic variety, this point is too relative to be of diagnostic value.

Course. — For the most part the disease becomes manifest many years after infection. The age incidence, however, is appreciably lower than that of the arteriosclerotic types. In ten cases recorded by Welander the ages varied between 28 and 55.

Diagnosis.—In general, it may be said that it is difficult to make a differential diagnosis from other forms of small contracted kidney disease. If anything, the general symptoms such as headache, disturbance of vision and nausea occur later and perhaps to a lesser degree than in the nonsyphilitic varieties. Nephritic symptoms suggesting the type associated with advanced age should always be viewed with suspicion when occurring in a young individual. With due allowance for the Wassermann reaction, a positive test in the presence of urinary symptoms may be viewed as confirmatory, but not conclusive, evidence. Where there are other visceropathies of definite syphilitic nature, such as gummas of the liver or amyloid spleen, the presence of associated renal disease may be accepted as part of the syphilitic process. As Neumann well says, however, all these factors being considered, the diagnosis of chronic interstitial syphilitic nephritis is most often a necropsy, rather than a clinical finding.

Prognosis.—The prognosis compares about equally with that of other forms of chronic interstitial nephritis. Even when early recognized, antisyphilitic treatment can have but little effect in the presence of fibrosis and a destroyed parenchyma. Where improvement has been noted it is no doubt largely due to the treatment of the associated syphilis and the effect of treatment on remote viscera and on blood vessels. A certain degree of improvement may be looked for in patients in an earlier stage of the disease. After the condition has been well established, however, the course, except for occasional remissions, is progressive. In my clinic two undoubted cases showed marked improvement following arsphenamin treatment, so far as general health was concerned. The patients were able to resume their work, but there was little change in the urinary findings.

GUMMA OF THE KIDNEY

Gummas of the kidney are extremely rare, both as clinical and pathologic findings. They are no doubt more common than is clinically recognized, first, because of the great difficulty of recognizing small gummas within the substance of the kidney, and, second, because gummas may exist without causing any symptoms. The few cases which have been diagnosed clinically have been those with an extraordinary clinical picture giving rise to faulty diagnosis, with correct diagnosis at operation. A few cases have been recognized from the clinical findings in the urine, and these have been verified at the postmortem examination. Virchow has called attention to the possibility of renal gummas, suggesting that many of the scars seen in old kidneys, supposedly due to hemorrhagic infarcts, might be due to syphilis. The condition was first accurately described by Beer. Following him cases were reported by Wagner, Lancereaux, Paolucci, Axel Key and Israel. The entire subject is extensively reviewed and an additional case reported by Erdheim.[18]

The cases are too few to construct from them a typical clinical picture. Erdheim has pointed out, however, that sudden hemorrhage, associated with a large amount of detritus in the urine, is suggestive of the breaking down of a gummatous process. Most of the cases recorded in the literature have been severe cases of syphilis, many of them associated with gummatous involvement of other organs, and particularly with the extensive destruction of bone. The gummatous involvement may be unilateral, occasionally bilateral. In number, the gummas may vary from a single large mass completely destroying the kidney substance, as recorded by Bowlby, to several small nodules, as reported by Key. In Israel's case, in which the kidney was extirpated for tuberculosis, pain and definite tumor formation were noted, with a picture of redness, swelling and pain in the lumbar region. In Paolucci's case there was an associated interstitial nephritis which gave rise to albuminuria and cylindruria. The cases in which the urinary findings led to the diagnosis were those of Seiler and Welander. The former's diagnosis was substantiated at necropsy. Hemorrhage, a great variety of casts, epithelial cells and detritus, in association with other manifestations of syphilis, led to the diagnosis. According to Erdheim, the gummas may be present alone or they may be associated with interstitial nephritis or amyloid disease, in which case a diagnosis of gumma would be manifestly impossible.

Nothing definite can be said of the prognosis of a condition in which the diagnosis is so difficult and in which the cases are so few. The

18. Erdheim: Nierengumma, Wien. med. Wchnschr. **52**:455, 514, 569, 1902.

same holds true for the diagnosis. The one point of interest in this connection is the possible confusion in cases in which the perirenal tissue is involved with extensive renal tuberculosis.

AMYLOID KIDNEY

Amyloid disease of the kidney due to syphilis may occur alone but is frequently, as has been noted, a part of gummatous interstitial or acute parenchymatous nephritis. The clinical picture is in no way characteristic of syphilis nor of syphilitic nephritis, except when it is a part of some other syphilitic renal disease. In the latter case, however, the diagnosis is not clinical, but pathologic. Clinical amyloid disease of the kidney is not infrequently a part of syphilitic cachexia, being associated with amyloid degeneration of the spleen and liver. As its clinical course existing in a pure state is in no way different from amyloid disease due to chronic suppurative processes and long-standing tuberculosis, there is no need to dilate on its clinical phases.

PAROXYSMAL HEMOGLOBINURIA

Paroxysmal hemoglobinuria, a rare finding in general, is not infrequently associated with latent syphilitic infection. According to Pliege,[19] two thirds of the cases are syphilitic in origin, either acquired or congenital. Ehrlich[20] and Schumacher,[21] moreover, have reported improvement in cases treated for syphilis. The disease per se has nothing do with renal irritation, and the syphilitic type is in no way different from the nonsyphilitic. It usually occurs after exposure to cold and may be brought about by artificial conditions simulating exposure. In a case under my observation, the hemoglobinuria occurred when the patient's hands and feet were placed in cold water. In this case improvement was noted following treatment, but as the patient passed from observation, we were unable to state whether the improvement was lasting. As in other cases of paroxysmal hemoglobinuria, the syphilitic type is apt to occur more frequently during the winter. The course is chronic, extending over many years, and although influenced by syphilitic treatment, there is apt to be recurrence with perhaps less frequency and intensity than in cases uninfluenced by treatment. The prognosis is somewhat better in the syphilitic than in other types, and as the largest number of cases are of undoubted syphilitic nature, every case of paroxysmal hemoglobinuria should be carefully investigated for the presence of an acquired or congenital syphilis.

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19. Pliege: Med. Presse, 1896.
20. Ehrlich: Deutsch. med. Wchnschr., 1881, p. 224.
21. Schumacher: Verhandlungen des Congresses f. Innere Med., Wiesbaden, 1884, p. 357.

SYPHILIS OF THE KIDNEY PELVIS

Aside from the more usual forms of syphilitic nephritis, a few cases are reported in which it would seem from the clinical picture at least, that the pelvis of the kidney alone was involved in the syphilitic process. One such case has been described by Gottfried,[22] and two others by Welz.[23] In the latter's cases, one presented the picture of a perinephritis. In the other, the clinical picture was that of an obstinate pyelitis. Gottfried's case presented the clinical picture of a double sided pyelitis and cystitis with a negative bacteriologic examination. The diagnosis in all three cases was made apparent by the positive complement fixation test, and seemed to be confirmed by the complete recovery with antisyphilitic treatment.

SYPHILIS OF THE URETERS

An unusual case of gumma involving the ureter has been described by Hadden.[24] This was the demonstration of a pathologic specimen, the ureter and common iliac artery being involved in a large syphilitic tumor mass with enormous dilatation above the tumor and considerable constriction below it. The kidney was entirely cystic and the case was associated with gummas of the liver and spleen. Clinical syphilis of the ureter alone seems to be unknown as an entity.

SYPHILIS OF THE SUPRARENALS

A scant literature exists with regard to clinical syphilis of the suprarenals. This is the more striking when one considers that next to the liver and spleen, the suprarenal is the most common site of syphilitic involvement in the viscera in cases of congenital syphilis, and that, according to Warthin,[25] sclerosis of the suprarenals with atrophy of the gland is a common finding at postmortem examinations of old syphilis. Spirochetal invasion of the gland cortex has been noted in two cases by Warthin.

Early involvement of the suprarenals, however, is described with clinical manifestations resembling Addison's disease. Other cases are described in which syphilitic involvement of the suprarenal is thought to lead to suprarenal insufficiency without pigmentation, or without the Addisonian syndrome. Among the later manifestations of syphilis of

22. Gottfried: Ein Fall von Nierenbecken Syphilis, Wien. med. Wchnschr. **64**:600, 1914.

23. Welz: Nieren Syphilis, Deutsch. med. Wchnschr. **39**:1201, 1913.

24. Hadden: Obstruction of Ureter by a Gumma, Trans. Path. Society, London **37**:301, 1886.

25. Warthin: The Persistence of Active Lesions, Am. Jour. Med. Sc. **152**: 508, 1916.

the suprarenal are described gummas, sclerous suprarenalitis, and amyloid disease. Except for isolated cases of gummas, late involvement may be said to be a pathologic rather than a clinical diagnosis.

EARLY SUPRARENAL SYPHILIS

Cases of evident suparenal syphilis occurring early in the course of the disease, leading to symptoms either of insufficiency, or to a true Addisonian syndrome are described by Fordyce, Jacquet and Sezary,[26] Schaffner and Howard,[27] Hallopeau and Roy,[28] Gaucher and Gougerot,[29] and Gordon.[30] The latter's case presented the Addisonian syndrome in association with gummatous suprarenalitis. Of the cases mentioned above, that of Jacquet and Sezary presented the typical Addison's syndrome in association with an early secondary syphilis. There was great weakness, asthenia, pains in the extremities, prostration and hyperpigmentation. Under specific treatment the patient improved in all these symptoms, but being advanced in years, died of cerebral hemorrhage. An enormous enlargement of both suprarenals was found with *Spirochaeta pallida* in great numbers. The case of Schaffner and Howard, as well as those of Hallopeau and Roy, and Gaucher and Gougerot, presented typical Addisonian syndromes, and all recovered on specific treatment. According to Sezary, who has written the most extensive monograph on the subject, the sclerous suprarenalitis may not infrequently cause suprarenal insufficiency and debility. This author believes that all cases of suprarenal insufficiency with the characteristic low blood pressure and debility should be scrutinized carefully for syphilis.

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26. Jacquet and Sezary, A.: Surrenalite syphilitique de l'Adulte, Bull. et. mém. Soc. méd. d. hôp. de Par. **23**:314, 1906; Sezary, M. A.: Syphilis et glandes surrenales, Gaz. d. hôp. **87**:1317, 1914.

27. Schaffner and Howard: Addison's Disease of Syphilitic Origin, N. Y. Med. Jour. **103**:1026, 1916.

28. Hallopeau and Roy: Maladie d'Addison chez un Syphilitique, Bull. Soc. Franc. de Derm. et Syph. **16**:212, 1905; Ann. de Derm. et Syph. **4**:638, 1905.

29. Gaucher and Gougerot: Syphilis et Maladie d'Addison, Ann. d. Mal. ven. **6**:321, 1911.

30. Gordon: Med. Times and Gazette **1**:281, 1870.

SATURATION IN ROENTGEN THERAPY: ITS ESTIMATION AND MAINTENANCE

PRELIMINARY REPORT *

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Since roentgen rays were first applied to therapeutic uses two decades ago, studies and experimentation have resulted in the development of two widely separated schools concerning their method of application. Briefly, the older method is that by which maximum effects are gradually obtained by the administration of small doses, repeated at short intervals, and continued over a long period of time. This method has long been known as that of "fractional dosage," and the results obtained by it, in the hands of Pusey and others, have deservedly commanded the respect of the profession. Differing radically from the preceding is the more recent method of "massive dosage," by which MacKee and others have obtained results favorably comparable to those of the older method. By this procedure the maximum effect is obtained at once, and the dose is not repeated for an extended time. In spite of this wide divergence in methods, to the results obtained by each is due the respected position which roentgen therapy now enjoys. It is to be seen, however, that in each method the maximum or optimum effect is either preceded or followed by a stage during which the tissue effects are not definitely known. In the older method this occurs during the period before cumulative effects result in an erythema. In the method of massive doses a period of indefinite influence follows the original maximum effect. It may well be that these are periods of questionable influence on the end-result. This is due to our inability to estimate the residual effects of any given dose, and likewise the rate at which such effects are lost. A knowledge of these facts would enable one to reach immediately the maximum or optimum effect and to maintain such effects by properly measured subsequent doses. The elimination of these questionable features has been the stimulus of the following study.

Although many questions in this field remain unanswered, certain facts concerning the biologic effects of the roentgen rays have become

* From the Laboratory of Roentgenology, University of Michigan Medical School.

fairly definitely established, and on the scientific application of these must rest the rationale of their therapeutic usage. It is now generally conceded that the rays have a unique action on the molecular, atomic or even ionic structure of the tissues. Such an effect on their complex protoplasmic makeup gives rise to altered metabolism, altered function or even degeneration and destruction of the individual cell. Clinically, we are accustomed to recognize the gross results of these changes as stimulation, inhibition or erythema (degree of reaction associated with an erythema). Each cell, therefore, which, as the result of our efforts, has absorbed roentgen rays, undergoes a biochemical change, which may produce no appreciable effect, or may result in clinical manifestations as enumerated above, according to the quantity of rays absorbed. Presumably this sequence of stimula-

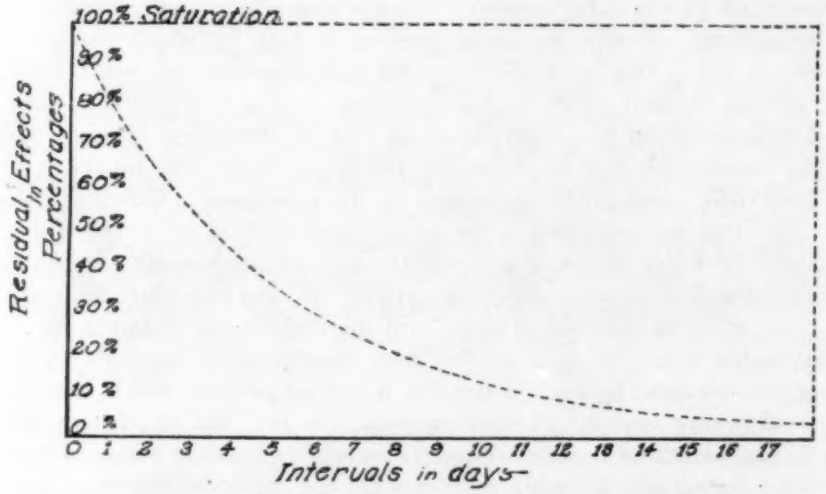

Fig. 1.—Curve of residual effect. Showing gradual decrease in tissue effects, following one full dose of roentgen ray; also sequence of events occurring in the method of "massive dosage."

tion, inhibition, and destruction always occurs; it may precede the erythema resulting from repeated small exposures, or it may follow, in reverse order, the erythema consequent to a single large exposure. In other words, the effect produced will vary according to the amount of rays absorbed by the cell, and one aspect of our problem becomes the maintenance, in the cell, of the optimum quantity.

MAINTENANCE OF OPTIMUM TISSUE EFFECT OF ROENTGEN RAYS

The maintenance of the optimum tissue effect must necessarily depend on the rate at which the effects of the rays are lost. Depending on this time rate is the frequency with which exposures may be

repeated, and the quantity that may be administered at each exposure. It seems but logical to assume that tissues exposed to roentgen rays, lose that effect in a constant manner. That the greater the concentration of the biochemical products of irradiation, the higher the velocity of loss, would not only seem to follow naturally, but also apparently is borne out by the observations cited below. If this be true, and if we may assume that the rate of loss varies directly as the concentration of some hypothetical decomposition product, then as this concentration decreases, the velocity of loss will become less in direct ratio. Thus, at such a time as this concentration has decreased by one-half, the velocity of loss will have become less by a similar amount, and so on until the residual effect has become negligible. This rate of loss, theoretically, would represent a logarithmic curve and may be so calculated. Such a curve has been established for many chemical and biologic reactions, which we know as "mass reactions," and if we may be permitted to draw an analogy, the biochemical change resulting from the absorption of roentgen rays by tissue elements, may follow a similar law. Should such an analogy be approached, the decreasing residual effect in exposed tissues might describe such a curve as above suggested, and might well lend itself to such a method of representation and computation. In other words, if our analogy is correct, the curve of residual effect in exposed tissues, should be a logarithmic curve, and with the velocity of recovery in logarithmic functions, and the intervals between exposures in days, as units, we should be able, mathematically, to estimate fairly definitely the residual effect of the rays in the tissues at any given time, and likewise the dosage required, at that time, to return the tissue to the saturation stage.

Interesting, in connection with these speculations, is the recent and creditable work of Bovie. Subjecting the ameba to ultra violet light, among other interesting results, he noted biologic changes wholly comparable to those outlined in the above paragraphs; likewise, that certain cellular elements reacted individually and in a characteristic manner; and finally, his observations seemed to indicate that recovery followed a fairly definite law. He was led to assume the formation of some toxic or inhibitory product in the cell, whose elimination proceeded at a rate governed by this law of mass reactions.

Proceeding on the basis of the above hypothesis, that the decreasing residual effects of the roentgen rays follow a logarithmic curve, a series of experiments were undertaken. Assuming that these residual effects decrease according to such a law, the velocity of this decrease, at any given time, should vary directly with the concentration of the irradiation effects in the tissue at that time. In other words, the greater the amount of ray absorbed, the higher the initial velocity of loss. At such time, therefore, as this concentration has decreased by

one-half, the corresponding time rate of loss shall have decreased by a similar amount, and so on, until the residual effect has become negligible. This condition, we know from experience, is reached somewhere in the neighborhood of the fourteenth day. Our first experiment consisted, therefore, in repeating full doses every fourteen days, the longer and therefore safer interval. The trials were without unfavorable complications. The next experiment consisted in determining after what interval of time, 75 per cent. of the full dose might be repeated. Using this constant dosage and gradually decreasing the time interval, it was found that 75 per cent. of a full dose may be repeated after seven day intervals. In a similar manner was established

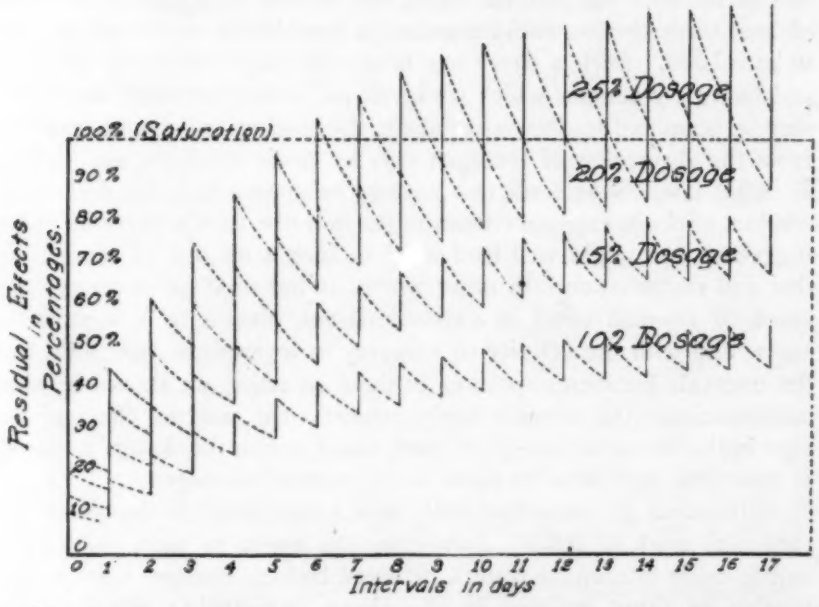

Fig. 2.—Showing sequence of events occurring in method of "fractional dosage." Note gradual rise in value due to cumulative effect of small doses at daily intervals.

the three and a half day interval for repetition of 50 per cent. of the full dose. Obviously these determinations have extended over many months of experimentation and have included several hundred trials of various time and dose relations. From these determinations it has seemed fair to assume that the residual effect present in the tissue after the seven, and three and a half day intervals, are 25 and 50 per cent., respectively, of the original maximum. During the experiments a slight erythema or increase in pigmentation has occasionally occurred, showing that the estimations are very near the true saturation value. With a shorter interval, the same dose has quite regularly produced a

reaction, while with longer intervals, the trials have been entirely free from such complications. Having determined these two points on the curve, with such accuracy as the method allows, a curve was completed, enabling one to select the proper dose for any given interval of time. The curve thus constructed is shown in Figure 1. On the verticals are read the decreasing residual effects in percentages of the hypothetical maximum or saturation dose. Horizontally is read the elapsed time in days. The residual effect on any given day, following a full dose, may be ascertained by tracing the vertical corresponding to that day, upward until it intersects the curve. On the horizontal passing this intersection, is given the residual effect, on that day, in percentage of the hypothetical maximum (100 per cent.). By subtracting this residual amount from 100 per cent., therefore, we learn the percentage of a full dose, required at that time, to return the tissue to saturation (100 per cent.), or any fraction thereof.

In a preceding paragraph we assumed that irradiation of tissues resulted in a biochemical change analogous to chemical and biologic reactions of the mass type. The above experiments, and more recently. the work of Bovie with the ameba, have seemed to substantiate this analogy fairly satisfactorily. In the beginning we were handicapped by the difficulty of accurately determining when an erythema dose had been given. Apparently the amount necessary to produce an erythema differs with a large number of conditions, and it is unquestionably preferable not to assume a too arbitrary or dogmatic attitude concerning the erythema, saturation or optimum amount of roentgen ray for every given set of conditions. Undoubtedly the change resulting from absorption of the rays, is a molecular or ionic change. Furthermore, each type of normal or pathologic tissue cell has a characteristic susceptibility for the rays. Cells might be well classified from our standpoint, therefore, according to their individual radiosensitiveness. Much of our present knowledge of roentgentherapy is based on clinical experience. This applies not only to the inherent variations of cell type, but also to certain obvious and established factors, such as individual idiosyncrasies, susceptibility in different locations and at different ages, variations between exposed and nonexposed body surfaces, the blood vascular system and other constitutional factors not well understood. Each of these factors must influence the amount of ray necessary to produce a given change, and no one empiric method can possibly apply, without modification, to every given set of conditions. It would rather seem that the accurate determination of a law, embracing these several factors, must await the results of long and careful actual titration. We believe, in the present study, that a safe method of such titration has been devised, and future study of the subject in this manner is now contemplated.

In spite of the difficulties mentioned above, in the end it was decided to use the average dose as we have been using it in ordinary practice. With this dose a sufficient number of approximations have been made with results which justify the belief that the hypothesis, as outlined, is essentially true. In order to graphically develop the analogy on which the present study is based, various methods of administration have been charted. Presumably, tissues exposed to the roentgen ray lose those effects in a constant manner. The readings on the charts should apply, therefore, whether the ray is given in small amounts at one, two, or three day intervals, or in massive doses separated by a period of several weeks. All the charts are constructed on the same scale in order to illustrate the principal possible variations of the time and dose relations, and the sequence of events in the various methods.

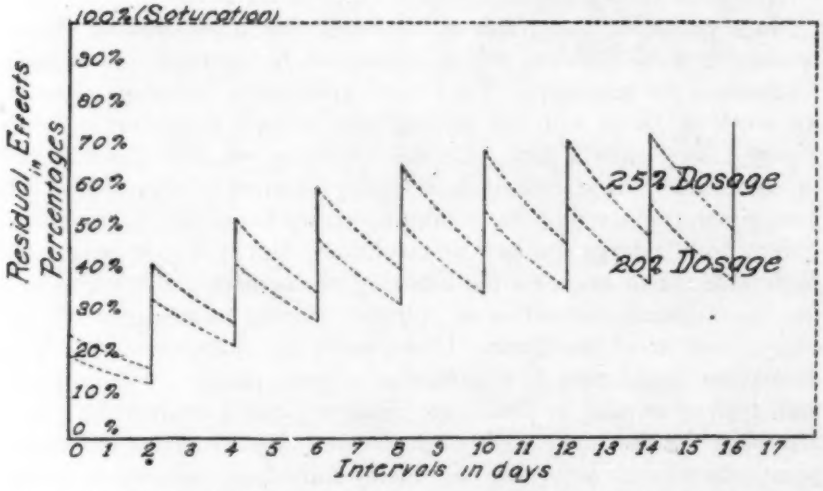

Fig. 3.—Similar to Figure 2, with the exception that doses were given on alternate days.

CONSIDERATION OF SEQUENCE OF EVENTS FOLLOWING THE THREE METHODS OF DOSAGE

Figure 1 represents the sequence of events under the conditions of large doses at long intervals, that is, the massive dose method. The curve represents the gradual decrease in residual irradiation effects. On the verticals is read the residual effect of the dose given in percentages of the hypothetical maximum or erythema dose, and represented by 100 per cent. Horizontally is indicated the elapsed time in days. It may be seen that at the expiration of three and one-half days, the residual effect has been reduced to 50 per cent. After a lapse of a second similar period, a total of seven days, it has been reduced to

25 per cent., or just half the amount present at the beginning of this second three and one half day period. Similarly in ten and one half days it has fallen to 12½ per cent., and at fourteen days to approximately 6¼. Thus, it is seen that as the concentration of the irradiation effects decrease, their rate of loss is lessened in direct proportion, and the curve might be continued indefinitely. The residual effect soon reaches a value which is negligible, however, so that it is safe to repeat a full dose after a period of two or three weeks. Particularly interesting is the initial rapid decline of the curve. The period of time, therefore, during which the tissues anywhere nearly maintain the maximum and presumably optimum effect is relatively short. According to our present conception, small amounts of ray stimulate cellular metabolism and division, larger amounts inhibit these processes,

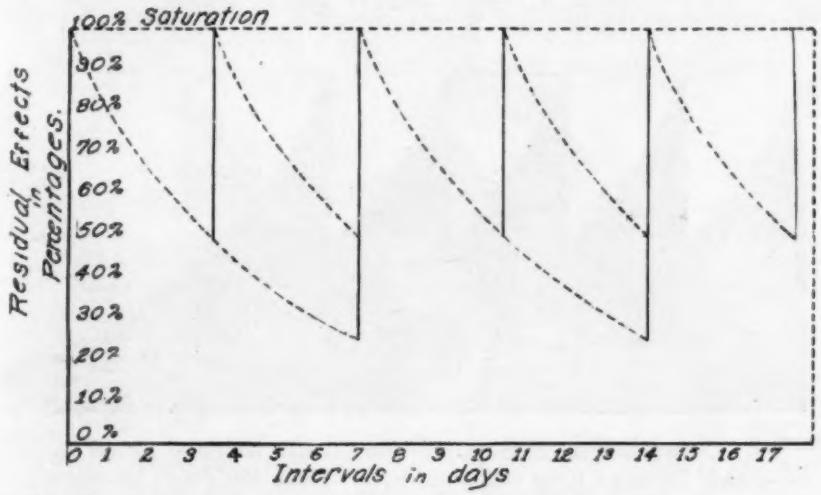

Fig. 4.—Sequence of events in methods of present study. Result of administration of 50 per cent. of full dose every three and a half days, and of 75 per cent. of full dose, every seven days, following initial full dose, of 100 per cent.

while the maximum dose tolerated is necessary to result in the lethal cell effect. The importance of the latter is well exemplified in the treatment of new growths. At present it is impossible to determine the transition from the destructive to the inhibitory, and thence to the stimulating phases. These are peculiarities of the individual cells and cell types, rather than of the tissue mass as a whole. Yet it would seem from the descent of the above curve that the stage of destructive effect is relatively brief, and that it soon reaches the phase of stimulation where the influence is directly opposed to the effect desired.

Interesting, by contrast, is Figure 2, in which is represented the sequence of events following the older method of small doses at short

intervals. Again the verticals represent percentages, the horizontals, the intervals and the connecting curve, one of logarithmic functions showing the rate of loss. The daily administration of 10, 15, 20 and 25 per cent. of the erythema dose are shown. It may be seen that the daily administration of 25 per cent. of the full erythema dose leads, in the course of six days, to 105 per cent., and if further continued, would lead to a decided overdose. This gradual increase in effects and final appearance of an erythema, we attribute to the so-called "cumulative effect." If, however, only 10 per cent. is given daily, the curve does not rise above 60 per cent., and one never reaches the optimum or maximum dose. The curves of 15 and 20 per cent. fall, obviously, between these. Figure 3 simply illustrates the effect of 20 and 25 per cent. given at two day intervals, with a corresponding more gradual rise, and therefore later appearance of an erythema. Regardless of the fraction of the full dose chosen, therefore, there is always a period

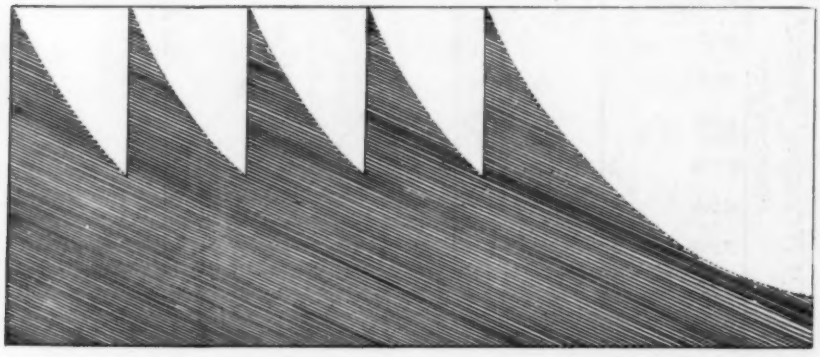

Fig. 5.—This represents graphically the average treatment of five cases of moderately advanced basal cell epithelioma. These cases were chosen from a series, as it so happened that they returned at regular intervals for treatment. Each received an initial maximum dose, and four subsequent doses, each 50 per cent. of the original full dose. The intervals are each three and a half days. The shaded portion shows the residual tissue effect. This is practically always above 50 per cent. and is, at short intervals, returned to maximum. A comparison of the shaded area with that accompanying one large dose and its loss, or that of the fractional method with its initial period of incomplete saturation, readily emphasizes the differences in effects maintained.

of incomplete saturation of the tissues, as well as a succeeding period of falling values. These periods are open to questions similar to those presented in the discussion of Figure 1. It is at least suggestive that these periods of incomplete saturation represent a loss of time and effort. They may also prove harmful by the stimulation of the pathologic cells which they seek to destroy, or through the development of a resistance to the effects of irradiation.

Figure 4 represents the method of the present study. It strives to reach immediately the maximum dosage and to maintain maximum effects by properly timed subsequent irradiations. In this way are avoided the stages of questionable influence preceding or following the maximum effect in the preceding methods. This is illustrated in the chart. An initial maximum dose (100 per cent.) is administered. After three and a half days the curve of residual effect has fallen to 50 per cent., a point at which optimum effects are questionable. At this time, therefore, 50 per cent. of the original dose is repeated, thereby returning the tissues to the saturation stage, as indicated in the chart. Practically, it has not been safe to repeat at shorter intervals, due to the dangers of "accumulative effect." Obviously, these might result from an inaccurate estimation of individual susceptibility or the part irradiated, before becoming clinically evident by the appearance of an erythema. Experience has shown that 50 per cent. of a full dose

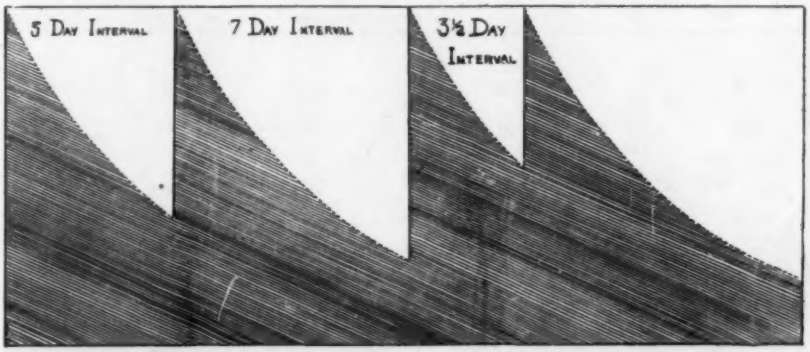

Fig. 6.—This figure illustrates the flexibility of the method. The patient required continued intensive therapy, yet could not return at regular intervals. The initial dose was our ordinary full dose, 100 per cent. The patient returned five days later. By consulting Chart 1 we found the residual effect at this time is approximately 37 per cent. The patient received the amount required to return the tissue to saturation. The next interval was seven days, and again the proper percentage of the original dose was given. The last interval was three and a half days when, due to clinical improvement, the patient was saturated for the last time. Thus, after each interval, we were able to estimate the residual effect and give the patient the benefit of the maximum dosage, with safety. Likewise the treatment, at any time, might have been continued in another more accessible laboratory.

may be repeated after a three and a half day interval as represented in the chart. Trials, described above, with longer and shorter intervals have shown this as very near the true average value. Practically most of the work here is done on the basis of the three and a half day interval.

By the initial full dose, the preceding stage of questionable effects and the long period of time of the method of fractional dosage, are presumably avoided. Likewise, by subsequent irradiations at three and one half day intervals, the phases of questionable influence following a single large exposure are done away with. And finally, we are at all times able to estimate accurately the residual effects in the tissue and the amount of rays necessary to return the tissue to the maximum effect.

The method, however, is not at all limited to the three and a half day interval as described above. It is practiced when possible because in this way maximum effects are more continuously maintained. Not infrequently, however, due to conditions over which one has no control, irregular intervals are unavoidable. Here, also, the method is equally applicable. So far as experimentals have gone, this law of residual loss is constant, and knowing the previous dosage and elapsed time, we are able always to return the tissue to the desired stage.

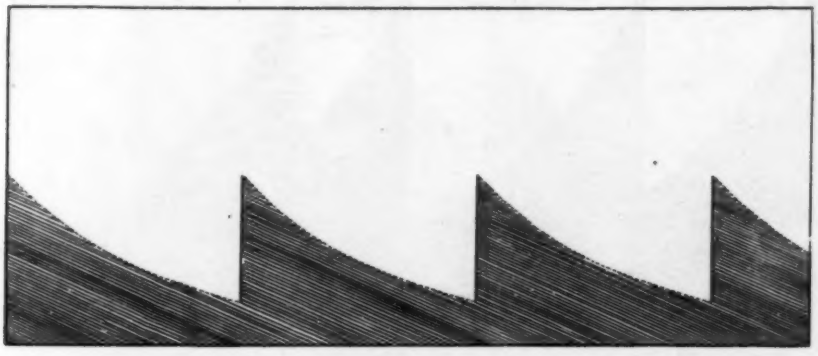

Fig. 7.—In this figure is represented the treatment of a series of cases, in which maximum effects were not required. The initial dose was one-half the full dose, and at weekly intervals the patients returned to have the effects reinforced; in other words, continued mild stimulation.

CONCLUSION

The present study is an attempt to establish an analogy between biochemical mass reactions and the changes produced in tissues by absorption of the roentgen rays. To biochemical mass reactions accurate mathematical estimations have been applied. At present a rigid demonstration with the tissue effects of roentgen rays is impossible because of the inherent difficulties of this estimation. In the present study, at least, they have apparently lent themselves to similar methods of computation. Since the beginning of their therapeutic usage, application of the roentgen rays has been based largely on the knowledge culled from years of clinical experience rather than on any

exact or mathematical basis. The advantages of such a method are obvious:

1. Accuracy with which desired irradiation effects may be obtained and continued.

2. Avoidance of stages of incomplete saturation, perhaps of questionable influence by properly measured doses at proper intervals.

3. Ability to duplicate accurately effects after various time intervals, even by different operators.

4. Constant protection of patients from the results of improper time and dose relations.

The method presented herein is submitted as a preliminary to further studies directed toward that end.

For constant help and invaluable suggestions throughout this work and likewise for the departmental facilities placed at my disposal, I would express my appreciation to Prof. James G. Van Zwaluwenburg of the Department of Roentgenology. For many helpful criticisms and every possible encouragement, I am indebted, as always, to my chief, Prof. Udo J. Wile.

TREATMENT OF CHANCROID WITH THE HIGH FREQUENCY VACUUM ELECTRODE AND COPPER SULPHATE SOLUTION *

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It is a well recognized fact that the treatment of chancroids by the application of caustics, including the thermocautery and antiseptics, has been notoriously unsatisfactory. This is substantiated by the evidence provided by Martin, Thomas and Moorehead, who record no less than twelve protean substances, in addition to the actual cautery, which have been recommended from time to time as being therapeutically efficient.

The failure of these various therapeutic agents is due to the fact that the Ducrey-Unna bacillus and the other pathogenic organisms always present lie deeply embedded in the tissues and out of reach of the destructive and inhibiting action of the medicaments.

Therefore, to bring about healing, it is necessary to provide some method whereby the germicide will penetrate deeply into the tissues, and come into actual contact with the infecting agent. This can be most efficiently accomplished by the high frequency spark, employing the glass vacuum electrode and the application of 25 per cent. copper sulphate solution to the ulcer.

My attention was first drawn to this method of treatment by the presentation of Robbins and Seabury [1] before the Section on Genito-Urinary Diseases of the American Medical Association, at its meeting in New York, June, 1917.

In making a brief survey of the literature, I find but scant reference to this method of treatment. The work of Robbins and Seabury, however, had been antedated by Jersild [2] of Copenhagen, who published the results of his investigations in a Danish journal. A translation has not been obtained.

Eberhart [3] gives the treatment of chancroid by the high frequency spark without copper sulphate, and states that it is superior to acid cauterization.

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* Read before the Philadelphia Genito-Urinary Society, December, 1918.

1. Robbins, F. W., and Seabury, F. P.: Treatment of Chancroid, J. A. M. A. **69**:1217 (Oct. 13) 1917.

2. Jersild: The Abortive Treatment of Ulcus Molle with Copper Ionophoresis, Ugesk. f. Læger **78**:850, 1916.

3. Eberhart, M. D.: Brief Guide to Vibratory Technic, Chicago, Chicago Medical Book Co., 1915.

A method of treatment to be successfully applied to any pathologic change in function or structure, must be based on a correct diagnosis. On this basis the distinguishing features between chancroid and chancre should be clearly borne in mind, and no absolute conclusion should be drawn until after several successive dark field illumination tests have been made; and, further, if these tests should prove negative in reference to the presence of *Spirochaeta pallida*. Wassermann examinations should be made over a period of several weeks, and the patient kept under observation even after the treatment of chancroid has been instituted. Of the series herein reported, two cases developed positive Wassermann reactions later, notwithstanding the fact that two dark field examinations were negative.

The writer is in accord with the opinion expressed by the committee appointed by the Surgeon-General of the United States Army to outline the best course of treatment applicable to the enlisted men, namely, "that every venereal sore should be regarded as potentially syphilitic until it is proven to be otherwise."

The treatment outlined by Robbins and Seabury, with slight modification, is as follows. A small pledget of cotton is made wet with 10 to 20 per cent. solution of cocain and applied to each lesion. After four or five minutes, the field is carefully cleansed with soap and water and dried. Each lesion is then thoroughly wiped out with a cotton wound applicator until bleeding ensues. This is arrested by sponging, and when only serum exudes from the wound, this is collected for examination by dark field or stain, as may be the choice of the operator.

A 25 per cent. solution of copper sulphate in distilled water is now applied to the sore, and the short high frequency spark from a rather fine-pointed vacuum electrode is applied directly to the sore for from one to three minutes, depending on the extent of the ulceration. Especial care is exercised in carrying the point of the electrode well down into any fissure or undermined edge, and the area of application should extend over the edge of the sore about one sixteenth of an inch into the doubtfully healthy area.

The current is not turned off until every crack and crevice has been thoroughly treated and the surface of the sore is changed to a dark greenish gray, otherwise any small untreated area may reinfect the entire granulated surface. It is then wiped dry and an antiseptic powder is lightly applied to the entire mucous surface of the preputial cavity. If the sore is exposed, it should be covered with a thick, moist dressing. For this any very dilute antiseptic solution may be used, such as mercurophen 1 : 16,000, or 1 : 20,000 mercuric chlorid solution, or sterile water. This dressing should be changed once or twice daily,

and must be kept moist, to prevent it from becoming adherent. At least once daily, the penis should be immersed in hot water for a period of from 15 to 20 minutes.

The patient is instructed to return in two days, and, if the work has been carefully done, the ulcer will present a perfectly healthy granulation that will go on to complete healing in a few days. In other words, an infectious ulcer is converted into a simple one.

If the sore does not look clean, the application is repeated at the second visit. The patient returns each second day. If the original sore was large, or if a small sore does not seem to be healing rapidly, apply, at each visit, either a 10 per cent. copper sulphate or a 5 per cent. silver nitrate solution. After sterilization of the ulcer, the next step is to apply a remedy to hasten dermatization, or healing. The following is efficacious in promoting this process, and should be applied once daily by the patient:

Silver nitrate	1 dram
Spirit of nitrous ether	1 dram
Distilled water	1 ounce

Do not hesitate to repeat the original cauterization at any time the chancroidal infection may appear to be not completely eliminated.

The complete success of this, as with any other method, is dependent on careful, thorough work. There is more danger of too little cauterization than of too much; and thorough cleansing at the time the sore is destroyed, must not be forgotten.

Rationale of Treatment: Some claim the high frequency current drives the copper into the tissues by molecular bombardment.

The vacuum tube gives off heat. Ruggles of Brooklyn found that the Ducrey-Unna bacillus has low resisting power, and is killed at a temperature of 120 F. The chemical rays produce a hyperemia, with the resultant benefit on cell nutrition. Oxygen (a specific for balanitis gangrenosa) is liberated. It is germicidal, and has a peculiar property to attack pathologic tissue.

This paper is based on a study of fifty-two cases. Of these, four developed buboes, two of which resolved and two suppurated. Thirty-nine healed within two weeks, seven in three weeks, and six in from three to five weeks. No ulcer showed any tendency to spread after treatment. The cases just detailed may well be compared with sixty-three cases of chancroids treated according to older methods, including treatment with: argyrol, calomel, black wash, dusting powder, phenol, iodin, iodoform, etc. Twenty-eight of these developed buboes, and had come under observation six months before. The reason for not having a larger percentage of early cures is undoubtedly due to irregularity of attendance on the part of the patient. This applies especially

to dispensary practice. Patients feel so greatly relieved after the first treatment that they become careless, and it is therefore difficult to follow up the case, to give justice to treatment, and to obtain a satisfactory report. This applies more especially to the colored race. Our observations show that venereal sores attain a large size in this race owing to lack of early treatment.

SUMMARY

In conclusion, the advantages of the treatment of chancroid with the high frequency vacuum electrode and sulphate solution may be summarized as follows:

1. Bubo occurs in a small number of cases, the percentage generally given being 30.5.
2. Healing by this method of treatment occurs more rapidly than by any other.
3. An intensely painful ulcer is converted into a relatively painless one.
4. Economically, therefore, the patient is benefited.
5. The treatment is simple.
6. There is practically no reaction after treatment.
7. This treatment may be applied at any stage in the disease.[4]

Many of the cases which form part of this study are from the clinic of Prof. B. A. Thomas. The author hereby wishes to express his acknowledgement for this courtesy.

Medical Arts Building.

4. Since writing this paper, ninety cases in addition to the number mentioned in the report have been treated with equal success.

A CASE OF ACQUIRED CIRCUMSCRIBED HYPERHIDROSIS

WILLIAM ALLEN PUSEY, M.D.

CHICAGO

A Jewish girl, aged 22, presented herself, with what I thought was a large wet dressing around her right wrist. On removing it, I found beneath an entirely intact skin. To my surprise I then learned that the gauze dressing, an inch or more thick, was wet solely with perspiration. The sweating area was on the extensor surface of the wrist and on the back of the hand toward the ulnar side. As may be seen in the accompanying illustration this area was from 2½ to 3 inches wide and 5 inches long. It was sharply defined and its location did not vary. The skin was slightly pinkish and sodden. Sensation in it was diminished, but it was otherwise normal. The sweating occurred in almost constantly repeated attacks. A few seconds after the dressing was taken off and the surface wiped dry, minute beads of perspiration began to appear, and in a few minutes, the surface was covered by large drops of perspiration which were dropping into a puddle on the floor. In a few minutes more, the surface began to dry, and within ten or fifteen minutes, the sweating had ceased. At subsequent examinations, there were the same intermissions. The surface sweat profusely for a while and then the sweating ceased, to begin again after from five minutes to half an hour.

The patient said that she could start the sweating by vigorously twisting the wrist. Neither this nor rubbing or slapping the surface seemed to influence the sweating under my examinations. Other methods of exciting the sweating in the case were not tried.

The disturbance began eleven years ago, when the patient was a child 11 years old. The original spot was about the size of a silver dollar. At times the trouble disappears, and she has had periods of freedom from it of from one week to five or six months' duration. There is no appreciable variation in it in the different seasons. The sweating is more profuse during the day than during the night, and the patient thinks it is increased by warmth.

The patient is a well nourished, well developed young woman. She has had the common diseases of childhood except scarlet fever. Two and a half years ago she had appendicitis with operation; but beyond these she has had no illnesses. She is of fair intelligence, but is evidently not of a stable nervous type. She shows total anesthesia of the conjunctiva and pharynx, but gives no history of hysterical attacks.

She was given a 25 per cent. solution of aluminum chlorid and was told to use this cautiously over the affected area. This was done because of the remarkable property of aluminum chlorid and zinc chlorid in checking localized sweating, but it was not expected that it would have any effect in this case. Surprising to relate, the sweating was checked in the course of a week or ten days, and there has been no unusual

Hyperhidrosis in a circumscribed area on forearm. The large drops about to fall from the wrist and hand accumulated in from three to four minutes after drying the surface.

sweating of this area now for two months. Whether this improvement is one of the intermissions that the case has shown in the past, or whether it is due to the aluminum chlorid solution, or to the subjective effect of impressing the patient by doing something I do not know, but I am inclined to think the aluminum chlorid has produced the result.

Editorial

THE NEED FOR THE STUDY OF RINGWORM IN AMERICA

It is ten years since Sabouraud published his magnificent work on ringworm, and yet Hartzell says that in respect to this disease all except dermatologists are still groping in Cimmerian darkness. Perhaps Hartzell's statement is rather optimistic, for some, instead of groping, seem to be firmly planted with their backs toward the light. A little groping would enable them to approach sufficiently near the sources of illumination for comparatively clear vision. Public health officials might be cited as an example of this lack of illumination. By approaching the light a little they might see that the most frequent variety of ringworm recognized by them — ringworm of the scalp in children — is a disease that can be cured promptly, and that the loss of time to the affected child, and the danger of its transmission to others, make it a disease worthy of serious attention. A slightly closer approach to the light might lead them to discard the obsolete methods of treatment now in use and might perhaps incline them to provide roentgen-ray treatment in the larger communities. The light of midday has been shining on this treatment for sixteen years, and yet the treatment is rarely suggested even to parents who are able to afford it.

There is, however, a good deal of obscurity surrounding many phases of the ringworm problem in spite of recent progress. Beginning with the investigations of Marie Kaufman-Wolf in 1914 on ringworm of the hands and feet, a new interest was aroused in the subject, and in this country Ormsby and Mitchell, White, Hartzell and others have added much to our knowledge of the previously unrecognized or but infrequently recognized forms of the disease. Their work and that of foreign investigators has opened a large field for study.

One of the difficulties that has stood in the way of more rapid progress is the difficulty of the identification of the particular variety of fungus in the different cases. This is partly due to the fact that different investigators have employed mediums of varying composition for their culture. It is a well established fact that the same species always takes a characteristic appearance on a solid medium of constant constituents, and that such a culture permits differentiation of the different species, while on mediums of only slightly different constituents there is a wide variation in cultural characteristics.

Another difficulty in the identification is that in this country we have nowhere a large collection of living cultures of different species. Collections of cultures of living bacteria are numerous throughout the

country, the greatest, perhaps, being that of the Museum of Living Bacteria maintained at the American Museum of Natural History in New York. It would greatly facilitate study if some dermatologist could be persuaded to undertake the task of building up a collection of the various species of pathogenic fungi found here. With the cooperation of different workers in sending in cultures or scrapings from patients in widely separated districts, valuable material might be amassed and competent mycologists developed. Sabouraud's mediums should be adopted without change as the standard cultures for the present, as the cultural characteristics of a great many varieties are already established on his mediums. When this preliminary step has been taken there will be a better opportunity for approaching some of the other problems, of which there are many.

So far as it has gone, Sabouraud's work may be regarded as final for this phase of the subject. Yet in our country it is probably a fact that there are not a dozen dermatologists who know his mediums except by name. After years of experimentation he reached a combination against which the cultural properties of fungi could be standardized. Nevertheless, ignorant of the path this French mycologist journeyed, there are investigators in our country uselessly retracing his steps. There is always a type of scientific dunderheadedness of which this is an example.

Sabouraud's mediums should be employed until we have a standard collection of indigenous flora, and perpetuated, perhaps, as has been done in France. Then, for it is not easy to import the ingredients, we may be able to develop standard mediums of our own, and identify the variations of fungus growth on them as against our own. Having accomplished this we shall be able to proceed.

The next step should be the study of the biologic properties of different species grown on the various sugars, peptones and the like, in varying combinations. With this idea in mind, accurate data should be kept, not only of each fungus, but of its clinical source as well; namely, a photograph of the lesion, the aspect of the hair or nails, the position of the spores and mycelium in the follicle, hair or scales, the age, sex, race and general condition of the patient.

In Europe, where this kind of work has been done, the above is axiomatic. In this country, an excellent bacteriologist, holding the chair in a large school, stated that morphologic studies in this field were nonsense. A former assistant of his is now, after an academic bacteriologic training, a year in the army and four months in dermatology, posing, not only as a dermatologist, but as a mycologist. He knows nothing of mycology either clinically or in the laboratory sense. He is growing fungi on all sorts of mediums long since abandoned by Sabouraud. He does not even collect his material. An ignorant tech-

nician supervises this. She takes hairs and scales ad libitum from patients and drops them into culture tubes. In other words, nothing is known by this investigator either of the clinical or technical sides of the subject, no records are kept of the cases, and yet undoubtedly the work will be perpetuated in writing. Its value will be obvious, but no one will know the facts concerning this spurious coin when it is circulated, and it may pass as sound.

After the work outlined has been done, it will be possible to begin serious studies in immunology, allergy, epidemiology and biotherapy. Up to the present, the light in Erebus is dazzling compared with that today existing in the cavernous ignorance of this brand of mycology among us.

J. L.

Correspondence

"DERMATOLOGIC MISNOMERS"

To the Editor:—In an interesting article in the February number of this journal Dr. Moses Scholz discusses dermatologic misnomers. I agree with him as to the impropriety of many of these names and share his dislike for them, but it is always difficult and often inadvisable to change a name in common use however bad it may be. Erasmus Wilson, a classical scholar, gave excellent reasons for a change of certain dermatologic names, but the change only produced confusion. Jonathan Hutchinson introduced a few new names which proved too objectionable to become generally adopted. I, myself, must confess to having urged certain changes of name for which I am now sorry, but I am glad of a partial success in substituting trichophytosis for tinea trichophytina, chromophytosis for tinea or pityriasis versicolor (which Dr. Scholz would call tinea furfuracea microsporina), fibroma for molluscum fibrosum, and nodular syphilid for the old term tubercular syphilid. I still contend that the shorter and perhaps more meaningless a name is, the better. When a name embodies a partial description of a disease it is very apt to be too long and cumbrous and when our views of the disease undergo a change, as often happens, the name too must be remodeled. The name yaws fulfills the purpose of indicating a disease that few of us have seen but of which we have a definite mental picture. The name means nothing to us, and if we knew its origin and significance we might deem it highly inappropriate. *A meaningless name never becomes a misnomer.*

An attempt to change some of the names mentioned would only result in useless argumentation. As to the name erythema, it means more than hyperemia. It implies simple hyperemia in some cases and exudation in others. Dr. Scholz asserts that no condition showing exudation can be termed erythema. As a matter of fact, it not only can be so termed but has been so termed by great and good dermatologists of the past and present. When the skin becomes swollen and hard and presents certain clinical features the name erythema induratum, first applied to the condition by Bazin and now well established, very few would regard as a "most glaring dermatologic misnomer."

If erythema nodulare is an "equally untenable name," why does Dr. Scholz use it? I never heard of it before and do not find it in the index of recent dermatologic textbooks. The question is asked "For want of a better name why not call erythema multiforme dermatosis multiforme?" One answer is easy: Because the name suggested is ungrammatical. Dermatosis is a feminine noun and its adjective should be multiformis. Other valid answers might be given and a great difference of opinion elicited as to the propriety of changing many of these alleged misnomers.

The name eczema, which it is claimed should be discarded or changed to dermatitis, has now been in use for over two thousand years, and I venture to predict that this "time honored but vague term" will remain in use for centuries after Dr. Scholz and I have lost our interest in dermatology. It has always meant something, and it would be better now to strictly define its meaning than to change it for another name which would as readily be misunderstood. Our vague conception of eczema is our own fault and not the fault of the name.

And now to change the subject, let me say that far more regrettable than misnomers is the careless manner in which many of us express our dermatologic ideas. Would that every contributor to the ARCHIVES might read Duhring and Morrow carefully, not only to become familiar with their views but to acquire, if possible, their clear, concise and beautiful diction.

We are all prone to write hastily and some of us seem disposed to bury our ideas in a mass of high sounding verbiage which may impress but does not enlighten the reader. A blue pencil cannot be used too freely in going over manuscript intended for the printer. For example, Dr. Scholz says: "The very fact of redundancy and superabundance of dermatological nomenclature so often commented on and lamented about, can be utilized for the purpose of selection of more correct and better fitting names." He might have said that the oft lamented abundance of dermatologic names can be utilized in selecting those most fitting and have expressed the idea more clearly and in just half the number of words. In mentioning the claim that dermatitis is local and eczema of systemic origin, Dr. Scholz says: "The mere difference of etiology could warrant only a separation of idiopathic eczemas from specific eczemas and idiopathic dermatitides from specific dermatitides, but it does not justify the creation of two separate clinical entities to express merely the difference of etiology in otherwise identical conditions." This and other sentences written with fewer and simpler words would not need to be read twice in order to grasp the idea.

We often rail at the absurdity of legal phraseology. I have just signed a lease which I read with little understanding of some words but assumed it to be highly proper. In writing other than legal documents most lawyers, I imagine, do not use all of the impressive words at their command as many doctors seem impelled to do. I am unfamiliar with legal magazines, but this week I ran across the December number of *Bench and Bar,* read an article on "The Actual Trial of Cases" by Henry Wollman, became intensely interested in a subject quite apart from my habit of thought and what is more, I understood every sentence and every word. I cannot truthfully say this of most of the medical articles which I read. I wish many doctors might read this legal article or lecture, so plainly written and so interesting to a layman, and then compare it with our average medical literature.

Uncalled for criticism is a dangerous instrument and often does more harm than good, but since I am on the verge of becoming an old man who has given up his hope of revolutionizing dermatology and am well aware that in my contributions to its literature during the past forty years or more the heel of Achilles can be found exposed in very many places, I sincerely trust that Dr. Scholz will not take offense at what is merely intended as a kindly suggestion to him and other younger colleagues.

GEORGE HENRY FOX, New York.

COMMENT.—In reply to Dr. Scholz' article under the title of Dermatological Misnomers, in the February ARCHIVES, in which he criticizes, and by implication would change many old and well established dermatologic names, I would like to quote the following sentences from Barrett Wendell in his work on English Composition:

> In English, as in every other language, the final test of what words we may use is inevitably the usage of those who speak and write it; the test of what words we should use is the usage of those who speak and write it best, in other words, good use. . . .
>
> Common consent, general practice, is what makes the . . . alphabet signify anything. In this fact lies the . . . hopelessness of the efforts now and then made by . . . dogmatists, not possessed of despotic authority, to reform spelling. [With equal truth we

might substitute nomenclature here for spelling.—Ed.] . . . The question in a given instance is not what ought to be the case, but what is. And to the state of things which enables us to decide in spelling, as in other fashions, what the case is at any given moment, we give, for convenience sake, the name "Good Use." . . .

Dictionaries and grammars [or critics in nomenclature.—Ed.] to be sure may codify what exists at any given moment. Regarded as codes, they are invaluable; but at best they are codes of common law, not legislative enactments. The only sanction behind them is that of practice, of usage.

He is speaking of good usage as it applies to words in general literature. The rules, because they are based on fundamental biologic habits of mankind, apply to good usage of technical words in whatever profession, particularly if it is an old profession like medicine. Words of long established usage have grown so deeply into literature and into the minds of men that they cannot be uprooted. This is accepted as one of the fixed principles of literature in general. It would be well if we familiarized ourselves with these principles and kept them in mind when we feel inclined to make quixotic attacks on dermatologic nomenclature.—Ed.]

Abstracts from Current Literature

THE LANCET

A CASE OF CONGENITAL MULTIPLE SARCOMATOSIS. J. A. PERCIVAL. **197**:14 (July 5) 1919.

This case report is of interest because of its rarity and the wide dissemination of secondary growths. When first seen by the author, the patient was two weeks old. Multiple rounded and nodulated tumors were scattered throughout the body. The tumors were present at birth and varied in size and consistency. The child lived one month: microscopic examination of the tumors revealed small round-celled sarcoma.

X-RAY THERAPY. ROBERT KNOX. **197**:183 (Aug. 2) 1919.

The writer endeavors to give a summary of roentgen-ray therapeutics and describes the technic for a number of diseases that benefit from radiation treatment. He describes in detail the effect of radiations on the living cell in both normal and diseased tissue. If a particular cell or group of cells be exposed to a beam of radiations from a roentgen-ray tube certain events may follow: (1) the cell may be stimulated; (2) its activities may be inhibited; (3) the cell may be destroyed.

Both the direct and indirect effects of radiation are discussed to some extent. The question of dosage and of technic in different disorders is described. A few selected case reports are given.

THE PRIMARY TOXIC EFFECT OF NEOSALVARSAN. K. PETREN. **197**:244 (Aug. 9) 1919.

In reference to the symptoms that can be observed after an injection of arsphenamin, the writer states that it is generally recognized that they may be a consequence of the biologic interaction between the organism and the microorganism of syphilis—as the experience of the effects of arsphenamin has almost entirely been obtained from observations on patients suffering from syphilis. Many have accepted the suggestion that these symptoms from the nervous system are largely due to a "toxic storm," that is to say, they suppose a large number of spirochetes have been suddenly killed through the effects of arsphenamin, which has resulted in a large amount of toxin suddenly becoming free in the blood.

In order to prove whether or not this suggestion had sufficient grounds to be accepted as fact, the writer gave neo-arsphenamin to 140 patients with influenza pneumonia with the following conclusions: The toxic effect after the injection of arsphenamin was quite monosymptomatic, vomiting during the first twenty-four hours being the only unfavorable symptom, and that the only toxic effect—when there was any—followed fixed laws, as its occurrence was limited to a fixed period after the injection and was also to a certain degree dependent on the weight of the person that had received the injection. When we take these circumstances into consideration it seems unnecessary to discuss the question where the injected arsphenamin exercises its effects, as it

is quite manifest that a morbid phenomenon of this regular character and of this short duration cannot be a consequence of a local effect exercised on the stomach wall, but must be the effect of the poison on the center of vomiting—the bulb.

KERATODERMIA BLENNORRHAGICA. S. C. DYKE **197**:328 (Aug. 23) 1919.

This is the report of a case in which there was associated a severe gonorrheal arthritis. The condition promptly disappeared under vaccine treatment.

HYPERKERATOSIS OF HAIR FOLLICLES IN SCURVY. H. WILTSHIRE **197**:564 (Sept. 27) 1919.

In dealing with about 3,000 cases of scurvy that occurred among Serbian troops, Wiltshire noticed that a condition of hyperkeratosis of the hair follicles was commonly present, in addition to those skin changes which are generally described as proper to this disease. The proportion of cases showing follicular hyperkeratosis amounted to no less than 87 per cent. The follicles which showed this change were usually limited to the lower extremities, the favorite sites being the front and inner aspects of the thighs and the upper part of the legs. When they were numerous in these regions—and in some instances nearly every follicle was affected—those of the pubic hairs were often affected as well (20 per cent. of the cases), and sometimes those of the backs of the wrists and forearms (2.5 per cent.).

The author concludes that: 1. Follicular hyperkeratosis occurs in the vast majority of cases of clinical scurvy. 2. In a large proportion of cases it formed the first recognizable sign of a scorbutic tendency and would have enabled a diagnosis to be made before the onset of other symptoms. 3. It is similar in appearance to the hyperkeratosis of follicles which occur in other conditions due to malnutrition. 4. It appears to be due to altered nutrition of the follicle produced by simple deficiency of antiscorbutic vitamin.

DYSHIDROSIS: ITS PARASITIC NATURE. J. DARIER **197**:578 (Sept. 27) 1919.

The author discusses in detail the vesico-bullous and squamous eruptions of the hands and feet. The important points in the differential diagnosis of eczema, epidermophytosis and palmar and plantar trichophytosis are given.

His conclusions are: T. Fox's dyshidrosis or Hutchinson's pompholyx is not a distinct disease; what has been called by that name is only a clinical picture, a syndrome that may be called dyshidrosiform. When they are not artificial, professional, or medicamental dermatitis, the dyshidrosiform eruptions are usually and probably always, of mycotic nature, and due to the epidermophyton; careful and sometimes very laborious microscopic examination will provide the proof. They must be treated as such. If we want to retain the term dyshidrosis it must not be considered as giving a precise diagnosis, but must be completed by some qualifying term as done, for example, with the term sycosis.

Therefore, when one is faced with a dyshidrosiform eruption, the problem is to decide between the following two diagnoses: (1) parasitic epidermophytosic dyshidrosis; (2) nonparasitic dyshidrosis or occupational dyshidrosiform dermatitis.

THE CONTAGIOUSNESS OF FAVUS IN MAN. R. Sabouraud **197:** 581 (Sept. 27) 1919.

The problem of the contagiousness of human favus has presented itself since the disorder was first described; and its contagious character has been as much in doubt since, as before the discovery of the parasite.

The usual type is feebly contagious and the writer places importance on poverty, filth, promiscuousness and destitution as factors. In certain localities the same percentage of cases exists one generation after another, possibly only one or two members of the family having the disorder; but as the disease, untreated, may last a life-time, ample opportunity is given for the younger generation to be infected. Sabouraud states that the favus patient who is not treated for the disease will die a favus patient. He describes the rare occurrence of a very contagious type of the disease: A 6 to 12 years old child has a crust adhering to the scalp and refusing to disappear. This crust—gray, flat, as thin as the nail, very adherent, cannot be moved to and fro on the skin. The color is ash-gray, recalling the color of wasp's nests in the woods. It is from 0.5 to 1 mm. thick. When removed with the curet, the skin is red, moist and bleeding.

Culture reveals the common *Achorion schönleinii,* without any peculiarity to explain the strange behavior of this clinical form. The crust forms rapidly and increases visibly from day to day. It is a squamous favus at the outset, later rock crusts forming. Sabouraud states that if he had not seen the condition himself, he would be tempted to doubt the existence of such a type, which is of special interest because it is very contagious among children.

THE TREATMENT OF LUPUS VULGARIS. Robert W. MacKenna **197:**917 (Nov. 22) 1919.

Good judgment is necessary in selecting the opportune moment for energetic treatment. If the lesion is very active, soothing lotions are advised; after the active manifestations subside, energetic measures are carried out. The author discusses: excision, chemical agents, curetting and scarification, refrigeration, ionization, electrocautery, electrotherapeutics, tuberculin and arsphenamin treatment.

DIATHERMY. Normason Patterson **197:**1020 (Dec. 6) 1919.

Although this method of destroying malignant growths has been employed since 1910, Patterson asserts it has not been given the recognition it deserves. He believes that it should be the method of choice in cancer of the buccopharyngeal cavity. The unpopularity of the method is probably due, to some extent at least, to the costly and cumbersome apparatus required. A rather detailed description of the apparatus and technic is given. The advantages of diathermy over cutting methods are: (1) bloodlessness; (2) total destruction of the tissues in the neighborhood of the terminal and the impossibility of cell implantation; (3) sterilization of the parts; (4) destruction of structures some distance from the electrode; (5) sealing up of vascular structures and prevention of the entrance of bacteria, toxins or cells; (6) less pronounced shock; (7) a firmer and more dense scar, acting as a barrier to the spreading of the disease; (8) preferableness in the treatment of feeble and very old patients.

Waugh, Chicago.

BRITISH MEDICAL JOURNAL

THE CURE OF MULTIPLE WARTS ON THE FACE. CHARLES IND **2**:11 (July 5) 1919.

This is the report of a case in which the patient had a large number of warts of the verruca plana juvenilis type, situated on the forehead and scalp. The trouble had been present for eleven years and had resisted various kinds of local preparations prescribed by dermatologists. A saturated alcoholic solution of salicylic acid was used, as recommended by Stelwagon; on the following day the warts were removed by a sharp flat steel instrument beveled on one side only. The salicylic acid solution was applied to the bleeding points two or three times on the same day. The results were entirely satisfactory. The method is useless in treating the larger warts. Ionization with magnesium sulphate had failed to remove the lesions.

THE ACTION OF SYPHILIS ON NATIVE COMPLEMENT. B. H. SHAW. **2**:105 (July 26) 1919.

Syphilitic serum shows a diminution of complementary activity when incubated with sensitized corpuscles, as compared with normal serum. The serum also varies in its complementary power at different stages of the disease. The author gives a short description of the experiments from which his conclusions were drawn. The paper should be of special interest to serologists who utilize the normal complement in their serodiagnostic work.

A CASE OF SYMMETRICAL GANGRENE (*Raynaud's Disease*). EDWIN GOODALL. **2**:199 (Aug. 16) 1919.

THE COMPARATIVE VALUE OF NOVARSENOBILLON BY THE INTRAVENOUS AND INTRAMUSCULAR METHODS. L. G. LEONARD. **2**:266 (Aug. 30) 1919.

The course of novarsenobillon given in all cases was the same, being the regular prescribed army course of treatment. This consisted of seven injections of novarsenobillon in increasing dosage from 0.45 gm. to 0.75 gm. and seven injections of mercury extending over a period of fifty-eight days. Five hundred and eleven patients were treated. The intramuscular cases gave 95 per cent. negative Wassermann reactions and the intravenous 88.5 per cent. negative. The great objection to the intramuscular method was the pain produced by the injection. All of the early primary cases gave a negative Wassermann reaction with both methods. In the late secondary cases 86 per cent. were negative. In tertiary and congenital cases, intravenous medication gave a slightly higher percentage of negative Wassermann reactions than the intramuscular method. In both methods, however, after a single course of treatment, a little over 50 per cent. were negative. In the entire series, the intramuscular method gave the largest percentage of negative reactions after one course of treatment.

CUTANEOUS ANTHRAX. ERNEST F. NEVE. **2**:559 (Nov. 1) 1919.

The treatment adopted by Neve in these cases consists of thorough cauterization with a red hot button cautery. He regards excision and incisions as almost equally dangerous, tending as they do to open up fresh planes of communication, and thereby promote systemic infection. The natural local reaction

to the pathogenic irritant is very strong. There is most vigorous leukocytosis. As a rule, the blood is not infected. The cautery, while destroying the virus, also increases the local reaction. Clinically, Neve's records point to this as the most satisfactory method of local treatment. Sclavo's serum has been recommended. Most of these patients, however, when they come under treatment, must have already produced their own antitoxins; those who have not and are almost or quite moribund are hopeless. Seven of a series of seventy-five cases terminated fatally, giving a mortality of 9.3 per cent.

HERPES ZOSTER OF THE GLOSSO-PHARYNGEAL NERVE. C. T. Neve. **2**:630 (Nov. 15) 1919.

This is an interesting case report in which the important symptoms were (1) fever and vomiting; (2) facial palsy of peripheral type; (3) an auditory nerve affection; (4) on the mucous surface supplied by the glossopharyngeal nerve, an eruption resembling that of herpes zoster; (5) pain felt behind the ear and down the left side of the neck posteriorly.

EXPERIMENTS ON THE DESTRUCTION OF LICE AND NITS. A. Bacot and George Talbot. **2**:703 (Nov. 29) 1919.

This is a very interesting report of experiments carried out by the authors, in which lice and nits were submerged in tap water and water containing 1 per cent. sodium chlorid, at various temperatures. In further experiments the pediculi and nits were treated with solutions of cresol, lysol and soap emulsion, and also with kerosene.

The article is not suitable for abstracting, but the experiments prove that both the pediculi and nits are extremely resistant to the methods used. Kerosene destroyed them in a shorter period of time than any of the agents used. All pediculi were killed or died within forty-eight hours after being immersed five minutes in kerosene.

INDOLENT SORES ON THE FINGERS. Robert W. MacKenna. **2**:772 (Dec. 13) 1919.

An indolent sore on the finger of a nurse, a dental surgeon or a physician is all too often a precursor of a systemic spirochetal infection, and MacKenna urges the early examination of serum from such a sore for the micro-organism of syphilis as such lesions may present few if any of the accepted characteristics of a Hunterian chancre. There are no definite and inseparable characteristics of a chancre of the finger. It varies according to whether it is due to a specific infection superadded to an already existing simple sore, or is the result of a pure infection, de novo, through an abraded epidermis, or is due to an infection coincident with the implantation of one or another of the ordinary micro-organisms of suppuration.

In the author's experience the chief features of a chancre on the finger are: (1) its indolent character; (2) its slow but progressive increase in area; (3) its shallowness; (4) its scanty discharge; (5) its comparative painlessness; (6) the early involvement of the nearest lymphatic glands. Any one or all of these features may be masked by a coincident infection. The one constant characteristic by which it can and should be recognized at an early date is the presence of the infecting spirochete revealed by microscopic examination.

The author gives three interesting case records of extragenital chancres.

SEVERE DERMATITIS DURING TREATMENT WITH NOVARSENOBILLON. L. G. LEONARD. **2**:773 (Dec. 13) 1919.

This case report has the following points of interest: (1) the occurrence of a severe dermatitis and toxemia after the administration of only 1.9 gm. of novarsenobillon; (2) the high temperature recorded—105 F.; (3) the simultaneous occurrence of three distinct types of eruption—maculopapular, scarlatiniform and urticarial; (4) the marked general adenitis at the onset present before the lesions, other than the scalp, had become pustular; (5) the negative Wassermann reaction became positive. The author does not state into how many doses the 1.9 gm. of novarsenobillon was divided, or the period of time over which the treatment extended.

WAUGH, Chicago.

LUPUS OF THE UPPER AIR PASSAGE. RUSSELL WEBBER, J. Laryngol., Rhinol. & Otol. **35**:7 (Jan.) 1920.

Webber's experience showed that in the vast majority of cases lupus vulgaris first appears in the nose within the nasal cavities. In 113 out of the 128 cases recorded, or 88 per cent., the disease was found in this location. In a certain number of cases there was extension of the disease to the mucosa of the hard and soft palate, the pharynx or larynx, without evidence of skin lesion, but in sixty-nine cases (52 per cent.) skin involvement was noted on the face.

In forty-eight cases (37 per cent.) glandular involvement occurred, and the submaxillary chain was most frequently affected. In twelve cases scars showed evidence of operation for old submaxillary gland trouble, and it is inferred that at the time of operation the disease within the nose causing the glandular enlargement was present but overlooked.

Seventy-seven per cent. of the patients were women, and the majority of patients were seen during the second and third decades.

Webber discusses the characteristics of the eruption as seen in the different parts of the upper air passages, and concludes with a consideration of the treatment of lupus.

Curettage with or without the application of lactic acid, electric cautery, Pfannenstiel's method and roentgen rays are the best methods employed, the method varying with the location of the disease.

SENEAR, Chicago.

A PATHOLOGIC STUDY OF THE LUNGS IN ONE HUNDRED AND FIFTY-TWO NECROPSY CASES OF SYPHILIS. JOSE LUIS CARRERA, Am. J. Syphilis **4**:1 (Jan.) 1920.

The author analyzes the reported cases of pulmonary syphilis and discusses the literature on this subject as to the following: (1) frequency of syphilis of the lungs, (2) types of pulmonary syphilis according to the authors, (3) spirochetes in the lung tissue, (4) inception of pulmonary syphilis, (5) gumma of the lung, (6) location of the gumma, (7) gumma in congenital syphilis of the lung, (8) diffuse syphilitic pneumonia, (9) syphilis caseous pneumonia, (10) lymphangitis syphilitica, (11) muscle cirrhosis, (12) chronic interstitial pneumonia, (13) syphilitic phthisis, (14) bronchial lesions, (15) cuboidal alveolar epithelium in syphilis, (16) syphilitic lesions in pulmonary arteries, (17) lesions of the pleura, (18) anthracosis and syphilis of the lungs, (19) elastic tissue in pulmonary syphilis, (20) syphilis and tuberculosis, (21) giant cells in syphilis.

Briefly stated, this review of the literature would seem to show that many of the reported cases of pulmonary syphilis have not been proved by scientific facts.

The author's investigation was made in a series of 152 necropsies of patients known to have been syphilitics. Twelve of these cases showed histologic changes of a definite syphilitic nature. These were divided as follows: (1) gumma of the lungs, three cases; (2) syphilitic peribronchitis with arteritis, two cases; (3) syphilitic fibrosis with arteritis, four cases; (4) syphilitic arteritis, three cases. The diagnoses were made on the histologic changes due to syphilis as described by Fordyce and Warthin.

The differences in histopathology of tuberculosis and syphilis are explained. The author does not think that the small number of cases in which definite evidence of syphilis was found indicates any immunity to the disease on the part of the lungs. He believes the small number of cases was due to the fact that a relatively small amount of tissue was examined.

A high percentage of the 152 cases showed a marked fibrosis. The exact number due to coincident myocardial affection could not be determined.

The author concludes that syphilis of the lung must necessarily be diagnosed microscopically.

TOMLINSON, Omaha.

CANCER AIGU DE LA FACE A TYPE CLINIQUE D'ACTINOMYCOSE FACIALE (1). J. NICOLAS, M. FAVRE et MASSIA, Bull. et mém. Soc. méd. d. hôp. de Par. **35**:988 (Nov. 27) 1919.

Nicolas, Favre and Massia have recently seen two cases of cancer of the face in which the skin of the face over a considerable area was deeply indurated, felt wooden, and was painful to the touch. Small points of degeneration, little superficial abscesses, a thinning of the skin, reddish violet color, and suppurating, fistulas were also seen. Trismus was present in both cases, and the lesions had developed in a relatively short time.

Thus both the objective and subjective findings were those of temporomaxillary actinomycosis, although yellow granules were not present.

Microscopic examination failed to disclose any organisms, but did reveal a picture of carcinoma, and the authors therefore believe that a pseudo-actinomycosis form of epithelioma ought to be recognized. They believe that the parasites of the mouth play a part in the production of this particular type of cancer.

SENEAR, Chicago.

AN ARTICLE ON INTRAMUSCULAR ARSENICAL TREATMENT. LEVY-BING GERBAY, Ann. d. mal. vén., No. 1 (Jan.) 1920.

The authors have given about 200 intramuscular injections of sulfarsenol, and enumerate the results obtained in seven cases. They believe sulfarsenol injected intramuscularly possesses as active and as rapid an action as any of the arsphenamin products injected intravenously. They contend that the intramuscular way is well borne, is very easily given, and has the advantage over the intravenous method of not causing any reaction, either early or late.

The drug is dissolved in distilled, sterilized water, in doses of 0.06 gm. in 1 c.c. of water, sometimes increasing to 0.12 gm. for 1 c.c. of water when the tolerance of the tissues is increased and when larger doses are indicated. The drug goes into solution immediately. The injection is made in the upper

portion of the buttocks, at the site usually chosen for intramuscular injections. Patients have been treated by first injecting 0.06 gm., following with 0.12, 0.18, 0.24, 0.3, 0.36, 0.42 and 0.48 gm. They feel that the frequency of the injections is more important than the size of the dosage. Injections are given every two or three days. The number of the injections is variable, and depends a great deal on the case to be treated.

A majority of patients suffered little or no inconvenience or pain. In a few there was some stiffness of the muscles, which rarely lasted more than from twenty-four to forty-eight hours. The authors did not notice any general reaction, either early or late, in this series of cases.

OLIVER, Chicago.

A COMPARISON OF TWO METHODS OF ADMINISTERING ARSENO-BENZOL COMPOUNDS IN SYPHILIS. H. E. GIBSON, Brit. M. J. **118**:114 (Jan. 24) 1920.

Gibson treated two series of patients with kharsivan by two methods. In the first series the patients received an initial dose of 0.3 gm. and then doses of 0.6 gm. at weekly intervals, except between the third and fourth doses, when an interval of fourteen days was allowed to elapse. A total of 2.7 gm. was given in this course, which took five or six weeks, constituting a "concentrated" course.

In the second series, or "prolonged course," three injections of 0.3 gm., two of 0.4 gm. and two of 0.5 gm. were given at weekly intervals, except between the third and fourth injections, when a fortnight's rest was allowed. This course lasted about eight weeks. In comparing results the criterion of cure was a negative Wassermann reaction, and results showed that advantage seemed to rest with the prolonged course, owing to lesser incidence and violence of reactions, and partly because the total results were better.

SENEAR, Chicago.

CHANCRE DESTROYED BEFORE ITS APPEARANCE. MIGNOT, Ann. d. mal. vén., No. 1 (Jan.) 1920.

The author reports the case of a young man who came to him for a urethral discharge of three days' duration. Six days later he developed some venereal warts, which were cauterized with the Paquelin cautery. The patient later developed orchitis and prostatitis, and was under observation for two months. A series of injections of sodium cacodylate were given him while under treatment for gonorrhea. Shortly afterward, the patient complained of difficulty in swallowing, and after consultation and examination by several laryngologists, an ulcer was found on the posterior wall of the pharynx, which was diagnosed as syphilis. It cleared up under syphilitic treatment.

The author concludes that by cauterizing the venereal warts he destroyed the chancre before its appearance, minimizing the virulence of the secondary period of the disease.

OLIVER, Chicago.

INCIDENCE OF PROTEIN SENSITIZATION IN THE NORMAL CHILD. H. M. BAKER, Am. J. Dis. Child. **19**:114 (Feb.) 1920.

Baker employed cutaneous tests for sensitization to proteins to determine: (1) the incidence of sensitization in the normal child; (2) the relative frequency of sensitization to the specific proteins; (3) a standard by which results

of the reactions on anaphylactic patients may be determined properly. Proteins from the various groups of foodstuffs, prepared according to the method of Wodehouse, were used, and anaphylactic, as well as normal, children were tested.

A study of Baker's results showed that the incidence of sensitization of apparently normal children is almost a negligible factor. In anaphylactic children the articles of diet most commonly causing disturbance are oatmeal, potato, eggs, peas, rice, casein, beef juice and chicken. Only a careful study can reveal the causative factor or factors.

SENEAR, Chicago.

SYPHILIS AND ITS SEROLOGICAL SIGNIFICANCE. DAVID KAPLAN, New York M. J. **110**:969 (Dec.) 1919.

The author has repeatedly found positive Wassermann reactions in patients without syphilis, and in those who did not show any trace of the disease at postmortem examination. To continue to treat cases after clinical improvement is no longer noted simply to render a positive Wassermann reaction negative is a poor therapeutic measure. A positive Wassermann reaction is not specifically an index to the existence of spirochetes in a patient.

Pleocytosis is not considered an index to the presence or absence of syphilis but indicates only an irritant somewhere in the nervous system and is of little value as a serologic guide to treatment.

The colloidal gold curve is the most instructive laboratory aid in neurology.

Most paretics are overtreated and intraspinal and intradural treatment in this disease is deprecated by the author.

TOMLINSON, Omaha.

TREATMENT OF LARVA MIGRANS, OR CREEPING ERUPTION. R. R. KIME, J. A. M. A. **74**:527 (Feb. 21) 1920.

Dr. Kime recommends as a simple, efficient, quick and easily applied remedy for creeping eruption, a salicylic collodion, 2 per cent. of salicylic acid for children and 4 per cent. in adults in plain collodion. This is painted twice daily well over the line of eruption, especially at the points of migration. The contracture of the collodion obstructs migration, and the salicylic acid destroys the larva.

PUSEY, Chicago.

DAMAGED GOODS. A. PIJPER, South African Med. Rec. **17**:323 (Nov. 8) 1919.

Pijper, realizing that scanty information is available regarding the prevalence of syphilis in South Africa, attempted to determine this. Excluding all known syphilitics, he examined the blood of fifty apparently healthy persons, both whites and colored, and found a positive Wassermann test in 10 per cent. He assumes that only 50 per cent. of syphilitic patients in the latent stage have a positive Wassermann test, and so concludes that we must assume that 20 per cent. of the patients examined had syphilis. If we add to this cases of known syphilis, excluded in the above series, we must conclude that between 20 and 25 per cent. of the people of South Africa are affected with syphilis. All of his positive cases were found among the colored population.

SENEAR, Chicago.

WRINKLED SENILE SKIN IN A CHILD TWO YEARS OF AGE. VARIOT and CAILLIAU, Bull. et mém. Soc. méd. d. hôp. de Par. **35**:989 (Nov. 27) 1919.

Variot and Caillau describe the case of a child 25 months of age, whose skin showed many folds and much wrinkling. Histologic examination showed an almost complete absence of elastic tissue in the papillary layer, and a complete lack in the lower portion of the corium. The question arises as to whether this deficiency is due to a lack of development of elastic fibers, or to a destruction of fibers. If the former is the case, can it be possible that the elastic fiber may develop later?

SENEAR, Chicago.

Society Transactions

MANHATTAN DERMATOLOGICAL SOCIETY

Regular Meeting, Dec. 9, 1919

PAUL E. BECHET, M.D., *Chairman*

GUMMA OF THE TONGUE. Presented by DR. M. B. PAROUNAGIAN.

Mrs. A. M., aged 42, had a lesion situated on the tip of the tongue, on the dorsal aspect, that was about the size of a silver dime, with an irregular border. It was not indurated, and had been present for about three months. She had been presented at the Academy, Section on Dermatology and Syphilis, with the above diagnosis, and most of the members disagreed with the diagnosis—some believing it to be tuberculosis, some epithelioma, etc. Two days after the presentation she was given neo-arsphenamin at the Bellevue Hospital Clinic, and the subsequent improvement was so marked—at least 50 per cent.—that it was deemed desirable to present her again. Her Wassermann reaction was ++++.

DISCUSSION

DR. L. B. MOUNT said that the clinical picture was more like that of tuberculosis—the jagged undermined edges and the brilliant-hued base spoke clinically for tuberculosis rather than epithelioma or gumma.

DR. A. J. GILMOUR said that when he saw the case at the Academy the previous week he had agreed with the views just expressed by Dr. Mount, but seeing it again after the arsphenamin treatment he thought it was a gumma.

DR. W. S. GOTTHEIL thought it was a gummatous condition.

DR. O. L. LEVIN said that the lesion did not resemble the ulcers of tuberculosis. This ulcer was regular, not undermined, clean cut and showed an absence of the miliary tubercles which were usually found on the mucous membrane in the neighborhood of tuberculous ulcers in that locality. Besides, tuberculosis in that region was always secondary to pulmonary tuberculosis.

DR. B. F. OCHS said that in his opinion the lesion was entirely gummatous. It seemed to be healing up rapidly under treatment.

DR. M. B. PAROUNAGIAN said he had seen the patient at Bellevue and when he first glanced at the lesion it seemed to be such a pale, indolent line with irregular undermined edges that he at once thought of gumma. The Wassermann reaction was ++++; that helped in the diagnosis. Most tuberculous lesions were hard and inflamed and more painful, and none of these conditions were present to any extent. The patient was a neurotic woman and complained of some pain. The majority of the opinions expressed the previous week had made him feel uncertain about his diagnosis, but he decided to give the neo-arsphenamin treatment anyhow, and the marked improvement encouraged him in his original diagnosis.

MULTIPLE BENIGN TUMOR-LIKE NEW GROWTHS. Presented by DR. O. L. LEVIN.

Miss A., aged 22, a native of Russia and an operator of waists by occupation, was first seen three days before presentation. She complained of dandruff and itching of the scalp. The lesions for which she was presented

were detected during the routine examination. On the upper part of the back she presented several lentil to bean-sized, slightly elevated, oval shaped, bluish-white, soft tumors. In the same region were several oval-shaped, slightly depressed, soft scars. There was no history of varicella.

DISCUSSION

DR. I. ROSEN said the case reminded him of one seen at Mount Sinai, that of a woman with a lesion on the forearm which was at the time diagnosed as morphea, with a radiodermatitis. She developed new lesions on the circumference of the radiodermatitis very similar to those shown on the back of Dr. Levin's patient. Dr. Highman made a biopsy and pronounced it sarcoid. If a section were made of this case it might reveal the same condition.

DR. O. L. LEVIN said he still believed the condition to me multiple benign tumor-like new growths and that they conformed to the descriptions given by Schwenninger and Buzzi. When seen by daylight, the lesions were more distinct. The tumors felt soft and could be depressed below the surface of the skin. Not only were tumors present, but there were also the atrophic scars which completed the picture. The term tumor-like new growth did not well describe the condition and was misleading. The pathology of both types of lesions showed an atrophy of both corium and epidermis, and the condition was evidently a primary atrophy of the skin. He repeated that he did not think it was sarcoid.

HEMIATROPHIA FACIALIS. Presented by DR. O. L. LEVIN.

Mrs. A. W., an Hungarian by birth, aged 35, married fifteen years ago, had two healthy living children and was divorced five years ago. She came to the Beth Israel Hospital clinic complaining of an alopecia of the left side of the scalp which had been present for five years. There was no history of syphilis nor did she present any evidence of it. Examination revealed an atrophy of the left half of the face and skull. There was a distinct flattening of the left half of the face, which was particularly marked on the forehead, and there was a distinct ridge separating the normal from the abnormal area. The skin was thin and on the forehead an absence of the underlying soft tissues was evident. A similar condition was preent on the left half of the scalp, and the hair had atrophied. The roentgenogram showed a thinning of the bone.

DISCUSSION

DR. M. B. PAROUNAGIAN said he had presented this same patient before the Society some two or three years ago. At that time the diagnosis was morphea. The lesion extended up to the scalp and was about one-half inch in width; it was white, elevated and board-like. There was also a similar lesion on the lower part of the sternum. The patient was treated with small doses of thyroid for some time. Later, she came to the Gouverneur Clinic and he watched her there for months. She apparently improved greatly and then disappeared. He thought the condition was morphea, with a few slight changes during recent years.

DR. F. WISE said the case should not go on record in the Journal as hemiatrophia facialis. Stelwagon described the condition. It was really hemiatrophia cranialis, for the face was not involved to any appreciable extent. It might be called morphea or scleroderma—but the term described a real

hemiatrophia facialis—one side of the face being flattened and hard, looking like a one-sided paralysis of the face. The term banded scleroderma was more suitable to this case.

Dr. O. L. Levin said the condition was described in almost all textbooks under the title hemiatrophia facialis. Stelwagon, Ormsby, Osler, and others included it under the heading of scleroderma. Starr, in his book, showed two cases in which there was atrophy of the skin, subcutaneous tissues and bone. Alopecia had been described as occurring in this condition. Two theories had been advanced to explain its etiology: first, that the condition followed scleroderma, and second, that it was a result of trophic disturbances.

EPITHELIOMA OF THE TONSILS, WITH SYPHILITIC CONDITION. Presented by Dr. M. B. Parounagian.

A man, aged 50, born in Hungary, whose father was still living, and whose mother had died of old age, twenty-five years ago, nine months before marriage, had contracted syphilis and gonorrhea and was treated for six months. The lesion in the throat appeared to be an epithelioma on the tongue in connection with a syphilitic condition. The Wassermann reaction was ++++.

DISCUSSION

Dr. L. B. Mount agreed with the diagnosis and suggested that it was a suitable case for treatment with radium.

Dr. P. E. Bechet suggested that the absence of enlarged submaxillary glands might be due to the fact that these glands were supplied by lymphatics draining the tongue, lips and floor of the mouth. The lymphatics of the pharynx ran along the course of the pharyngeal arteries and entered the upper set of deep cervical glands

Dr. M. B. Parounagian favored the diagnosis of epithelioma because four injections of arsphenamin had failed to clear up the condition, therefore he could not consider it syphilis. The mucous membrane lesions yielded to arsphenamin treatment better than to any other treatment. The appearance of the lesion suggested carcinoma, though the patient might have syphilis as well. He had bad teeth, and that might have aggravated the condition. The history of only three months' duration might account for the absence of enlarged glands. The speaker then asked for advice as to whether to continue the antisyphilitic treatment as well as radium.

Dr. F. Wise said that radium was the only remedy indicated.

LEPROSY. Presented by Dr. L. Oulman.

The patient was 13 years of age and was born in Greece. He showed a number of depigmented spots which were anesthetic, especially on the neck. All over the body were depigmented spots which were infiltrated. The ulnar on both sides was very much thickened, and the patient had the leonine face characteristic of Hansen's disease.

DERMATITIS EXFOLIATIVA. (Treated by Vaccines.) Presented by Dr. W. S. Gottheil.

Two patients were presented showing this condition, both from the City Hospital, one of them being a man of 70 and the other aged 77. In both instances the malady was of recent date. In one case it began in April, 1919; in the other, in September, with a general eruption and abundant scaling. When first seen both presented typical cases of dermatitis exfoliativa. Both

were treated with vaccines, resulting in immense improvement. The first treatment consisted of 50 millions, going up to 100 millions, at intervals of a week. One man had had four treatments and the other three, given subcutaneously. There was a slight reaction after some of the injections, but with most of them there was none at all. The improvement in the condition was marked. There was a sclerodermatous element in one case, though it was not a typical scleroderma.

DISCUSSION

Dr. Parounagian asked whether Dr. Gottheil expected the improvement to be permanent.

Dr. Wise said he thought it was difficult to differentiate cases of the type presented from leukemia cutis, lymphadenosis, pityriasis rubra of Hebra, etc., without biopsies, study of the blood pictures, etc.

Dr. Gottheil said that the gross appearance of both patients when first seen was that of a typical dermatitis exfoliativa. Both showed scaling as large as half the palm. They received no other treatment than the vaccines, and the improvement was immense. Both patients had been bedridden. He was not altogether satisfied with the examinations that had been made, but they were the best that could be obtained under the circumstances.

ALOPECIA TOTALIS (treated with carbolic acid). Presented by Dr. B. F. Ochs.

Wm. C., born in the United States, a night watchman, 39 years old, had a full beard and a full head of hair up to eight years ago. He then noticed that his hair was falling out. The condition began on the left side of the face and spread rapidly, so that in about one year his face and scalp were entirely devoid of hair (alopecia totalis). After treatment in various clinics, he came to Lebanon Hospital Dispensary about two years ago, and was presented in various society meetings as a case of alopecia complete.

The treatment consisted of painting the entire scalp with pure phenol—not neutralizing it with alcohol. A second application was made six weeks later. Internally he was given tincture mucis vomica in doses of 5 to 10 minims, three times a day. After six months his hair began to reappear, first on the scalp, then on the face. He was presented not so much on account of the treatment as to show that a patient with apparent malignant alopecia might recover. He presented a fair amount of hair on the scalp, and hairs were beginning to return in the axillae, pubes and on the face.

DISCUSSION

Dr. W. S. Gottheil said he had seen the case in the spring of the year. At that time the man was absolutely hairless and presented a perfect picture of alopecia totalis. The prognosis seemed bad. It was a wonderful regrowth of hair, considering that the man had been without any for five years. At the same time, it seemed doubtful whether the phenol had anything to do with the improvement since the man's eyebrows also were growing in again.

Dr. P. E. Bechet said that he had had considerable experience with phenol in the treatment of alopecia areata. Therapeutic results with the quartz lamp were superior, but phenol ranked next in value. He had observed uniformly good results from its use in the circumscribed variety. About five years previously he had presented before the Academy, Section on Dermatology and Syphilis, a very extensive case, the bald patch occupying about half the scalp.

He had repeatedly painted one half of this area with 95 per cent. phenol, leaving the other half untreated. After several months the hair was very thick over the painted area and was over one-half inch long, while the untreated half was bald. He was convinced of the value of the method.

Dr. O. L. Levin said that he had had a 2 year old child under treatment for alopecia of the scalp, which first appeared six months before treatment was applied for. No local therapy was employed, but small doses of thyroid were administered. Almost immediately the hair ceased falling out, and a month after beginning treatment the whole of the affected area was covered with fine hairs. The alopecia was of peculiar distribution; the baldness covered the frontal, temporal, and parietal regions and was complete except for a narrow band about one-quarter inch wide along the sagittal suture.

Dr. M. B. Parounagian did not understand what benefit could be obtained from the application of phenol on the scalp when the entire body was devoid of hair. He then recalled a case which he had presented some two months before, and said that perhaps the age of the patient might have something to do with the results. This patient was 29 years old, his own patient was over 50. He had made several applications of phenol without any effect whatsoever.

Dr. P. E. Bechet said he did not think that any of the therapeutic results were as effective in alopecia totalis as in the circumscribed variety. A favorable prognosis was more certain in the latter condition.

Dr. Ochs said he had not presented the patient with the idea of claiming that the applications of phenol brought out the hair elsewhere. At the time Dr. Parounagian had presented the case referred to, the speaker had advised the use of phenol and promised to present a patient that had had bald patches, and had been successfully treated with phenol after having been bald for a year. He had several of these cases under observation and would try to present them later, with pictures taken before and after the application of phenol, so that the improvement could be noted. Just at this time this patient came in, and it was not the question of phenol treatment only, but to show that a patient with complete alopecia might still hope for improvement. As a rule, such patients are told that their hair cannot grow again. This man was taking nux vomica, 5 to 10 drops, three times a day. He had especially wanted to show that there was no danger in treating the whole scalp with pure phenol without neutralizing it. The man made no objections to coming back after a month, and he wanted another treatment.

CHANCRE ON THE RIGHT TONSIL. Presented by Dr. M. B. Parounagian.

W. B., a single man, 28 years of age, born in France, a cutter by occupation, seen at the Bellevue Hospital Clinic, had a marked roseola and generalized adenopathy. No sores were present on or about the genitals. Upon examination of the throat, a sharply circumscribed, elevated, and indurated lesion was noticed on the right tonsil. His Wassermann reaction was ++++.

SCLERODERMA TREATED BY ENDOCRINS. Presented by Dr. M. B. Parounagian for Dr. Ludwig Weiss.

A man, aged 45, born in Germany, presented a scleroderma lesion on the forehead. The lesion resembled that of a linear scleroderma in a young woman shown by Dr. Weiss two years ago, which was cured by the adminis-

tration of thyroid extract. The duration of the condition in the present case was three months. The lesion consisted of a patch representing a strip an inch long and three inches wide, of a brownish red color and stretching across the forehead from the right eyebrow obliquely upward beyond the hair line. It was rather hyperemic, infiltrated and quite hard to the touch. A raised skin fold of the lesion appeared thicker than that of the opposite side. The treatment consisted in the administration of a ¼ grain of thyroid extract and 1 grain of pituitary (whole gland), for only two weeks, but the condition was so markedly improved that Dr. Weiss was desirous to have the case presented before the Society. Later he would report further progress with the rationale of the medication.

DISCUSSION

Dr. O. L. Levin agreed with the diagnosis as presented. He regarded the condition of the face and leg as a scleroderma, and did not believe that the furuncle could produce so extensive an induration and edema as the patient showed. The leg condition seemed to be the edematous type of scleroderma.

Dr. A. J. Gilmour thought the scalp condition looked like a subacute eczema, and the patient gave a history of continuous itching of the scalp for a long while. It did not seem probable that the infection he had would cause the marked edema of the leg with pustular lesions.

NEW YORK DERMATOLOGICAL SOCIETY

Regular Meeting, Dec. 16, 1919

George M. MacKee, M.D., *President*

ANGIOMA SERPIGINOSUM. Presented by Dr. Howard Fox.

Miss O. E. H., aged 27, born in the United States, a stenographer, with a negative history, as a child had suffered from chickenpox and whooping cough and eight years ago had had an attack of "walking typhoid." She had always suffered from obstinate constipation, otherwise her health had always been fairly good. The menses were established at 14, followed for a short time by dysmenorrhea.

The eruption first appeared on the forearms and later on the legs, face, neck, chest and back. It attained its maximum development in about five years, since which time there had been little change. During the past few weeks, simultaneous with the beginning of cold weather, the eruption had become more prominent on the hands and eyelids. The eruption in general was drier, redder and more noticeable in the winter. The patient perspired only on the face, hands and feet and only in very hot weather. There was slight burning of the skin when she became warm, but never any real itching. She considered herself as well and strong as the average person and had a good deal of endurance. She suffered from nervous indigestion at times. During the past thirteen years she had been treated by various general practitioners, most of whom considered her eruption to be an eczema and advised her not to bathe, although she found this to be advantageous. She had tried many kinds of diet without improvement.

The patient was well nourished, of a nervous type, short, weighing 112 pounds. There was a slight tremor of the tongue.

The eruption was generalized covering the greater part of the body, being most marked on the extremities. It was especially marked on the buttocks, thighs and arms. It was slight in amount on the flexures, the interscapular region and the face. The palms were entirely free. The soles, on the contrary, were red and covered with thick scales and callosities. The eruption, when viewed at a distance, consisted of extensive sheets of reddish skin, covered with a profuse branny scaling, with no evidences whatever of itching or oozing. On close inspection the eruption was seen to consist of reticulated masses of dilated vessels with a profuse sprinkling of bright red pinhead puncta. The redness could be almost entirely effaced by firm pressure, but returned immediately on removal of the pressure. No distinct papular elevations and no circinate lesions, as shown in the case of Dr. Wise, could be seen. On the face, and more especially on the front of the neck and chest, were numerous light yellow pinhead to pea-sized lentigines. These lesions, according to the patient's statement, were more numerous in summer. The eruption was best observed by removing the scales with a greasy application. The urine showed nothing abnormal.

Histologic Examination.—This was made by Dr. Walter J. Highman and showed:

Low Power: Eosin-hematoxylin stain. The changes were in the epidermis, papillary area and subpapillary stratum. Evidently an inflammatory and angiohyperplastic process were seen, for the capillaries were both dilated and increased in number and were surrounded by sheaths of inflammatory cells. In various sections from three to six or even eight papillae and their corresponding lower breadths were included. The entire picture was somewhat sharply terminated below, as in lichen planus, but the line was not quite so typically abrupt.

High Power: Higher magnification revealed moderate edema in the lower levels of the rete, papillae and subpapillary regions. The hyperplastic capillaries were moderately dilated and had swollen endothelia taking a slightly exaggerated nuclear stain. About the vessels, the cells already mentioned were found to be of the lymphocytic round type and semi-occasionally a plasma cell was present. The collagen, in islands, is slightly altered as to its staining intensity, being paler than normal.

Summary.—The condition was an inflamed, angiohyperplastic dermatosis.

DISCUSSION

Dr. G. H. Fox agreed with the diagnosis but desired to criticize the nomenclature. He said the dissemination was not an angioma nor was it serpiginous. He believed Hutchinson was responsible for the name and it was one of several bad names from the same source. As one swallow did not make a summer, so a thousand telangiectases did not make a tumor. In some cases there were patches that tended to increase in size by spreading at the margin, but there was nothing in this case to suggest a serpiginous character.

Dr. W. B. Trimble agreed with the diagnosis of angioma serpiginosum, especially since it seemed to him to be the consensus of opinion that cases of this kind should be so called. Generalized cases of this type were, so he understood, accepted by dermatologists, especially in New York, as examples of widespread angioma serpiginosum. That, however, was going far afield from the original description of the disease. Hutchinson depicted the disease as an isolated lesion with peripheral extension, perhaps in a serpiginous manner. A case conforming to the original description of Hutchinson was

presented at the Academy of Medicine by Dr. Wallhauser some years since. Probably the case under discussion at that time might have been looked on as a generalized telangiectasis.

Dr. W. J. Highman said he had examined a specimen from this case and, although he could not yet report on it in detail, the cursory examination certainly presented the microscopic picture described by Dr. Pollitzer so well in Dr. Wise's article. Although his experience was limited, it corresponded with the descriptions in the literature. He did not see why it should not be called a dermatitis telangiectasia, leaving out the term serpiginosum.

Dr. F. Wise said that in this case the eruption was almost identical in appearance with the case he had reported in The Journal of Cutaneous Diseases, October and November 31, 1913, with the exception that in his (Dr. Wise's) patient there were many distinct annular lesions, most apparent on the trunk, abdomen and legs. These annular lesions were well depicted in the illustrations accompanying his article. The cases described by British authors as angioma serpiginosum corresponded, without the slightest doubt, with the cases of the speaker and those of Dr. Howard Fox, including the patient presented at this meeting. In some of the patients the disease had been preceded by a fine vascular nevus which had apparently increased in extent in adult life, spreading in a more or less serpiginous manner.

Dr. G. M. MacKee said that the principal differential clinical and histologic feature between angioma serpiginosum and generalized telangiectasis was the presence of inflammation-dermatitis. This was manifested clinically by slight desquamation and histologically by infiltration. He was inclined to agree with the diagnosis of infective angioma or, as Dr. G. H. Fox would express it, dermatitis telangiectasia.

Dr. G. H. Fox said he had not meant to make any objection to the use of the name. When any name becomes established there is no real objection to its use. We retain the name angioma serpiginosum, inapplicable as it may be to certain cases, just as we retain the name of sycosis although we may never have seen a case that in any way resembled a fig.

Dr. Howard Fox said that, following Dr. Wise's suggestion, he would try the Alpine lamp on this case and hoped the result would be equally good.

FOR DIAGNOSIS (Probably Lupus). Presented by Dr. W. B. Trimble.

A girl, aged 6, born in this country, when a year old, according to the statement of the parents, had had an eruption scattered over the whole body, which disappeared in a short time, except on the face. This lesion remained and slowly increased in size until the time of presentation. It was irregular in outline, thickened, and (on close scrutiny) was seemingly verrucous in character. Several small superficial atrophied spots could be made out in the healthy skin close to the border of the lesion. There were also several small papular lesions of indeterminate character on the left buttock. The possibility that these lesions might be tuberculous had been taken into consideration.

DISCUSSION

Dr. W. J. Highman said it was a very interesting case. If the lesion had been on the scalp it would have suggested folliculitis decalvans in its late manifestations, and he did not doubt that similar lesions could occur elsewhere on the body provided there was a low grade of infection such as presented by this child. There was no evidence of tuberculosis of either the toxic or

the cutaneous bacterial type, as might be implied by the term lupus erythematosus. There seemed to be a low grade infection causing a disturbance of the follicles, leading to these more or less cribriform pseudo-atrophic scars. It seemed analogous to folliculitis decalvans.

Dr. G. M. MacKee said that his views rather coincided with those expressed by Dr. Highman. The condition made him think of ulerythema ophryogenes, the follicular element being masked by suppuration and crusting.

Dr. W. B. Trimble said that the case was presented for diagnosis and he had suggested that it might probably be tuberculous. The tentative suggestion of tuberculosis was brought up by the fact that the condition started very early in life—when the child was only a year old—in a group on the cheek and on one side. It was a localized lesion with a few outlying scars around it.

ECZEMA OF THE NIPPLES. Presented by Dr. W. B. Trimble.

A woman, aged 18, born in the United States, had had the condition for about a year. It exhibited the usual signs of eczema—redness, edema, slight thickening, sometimes weeping and sometimes crusted. The peculiar feature of the case was the thickening and intensely black wide pigmentation of the right areola. Both nipples were affected, though the condition on the left had been present for about seven months as against one year for the right. The lesion on the right breast dated back three and a half years, though the patient stated that the condition cleared up and remained practically well for about two and a half years Many different forms of treatment had been tried without benefit.

Dr. J. E. Lane thought the case was one of chronic eczema. The interesting and peculiar features were that it was bilateral and attended by so much edema limited to and occupying the whole of the areolae. He should expect the lesions to heal rapidly with mild doses of the roentgen ray—not over a quarter skin unit weekly, for a few weeks.

Dr. J. Kingsbury said that it was not easy to diagnose the case. It was convenient to call it eczema and keep it under observation, and it might be well to refrain from local treatment for a while. Perhaps it had been overtreated. In his opinion, roentgen-ray treatment was absolutely contraindicated.

Dr. Howard Fox held an exactly opposite view to that expressed by Dr. Kingsbury in regard to treatment. He considered the case to be an eczema, and from his experience in treating that disease he felt quite sure the condition would yield readily to roentgen-ray treatment.

Dr. W. J. Highman said he was almost afraid to express his opinion on the case, but the most striking thing about it was that the lesions were limited to the areola. In any ordinary exudative inflammation, either erythema or dermatitis, one would expect to find a more extensive spreading of the process to the neighboring skin. On account of this curious limitation of the lesion, he was inclined to suspect that the patient was of the type that might subject itself to an hysterical mutilation and that it was an artificial affair. It might be a good plan to put on some nonirritating dressing that could not be removed by the patient, and find out whether the lesions cleared up. Outside of that suggestion, he favored Dr. Howard Fox's views in regard to roentgen-ray treatment.

Dr. G. M. MacKee said he was very suspicious of eczema persistently located on or around the nipples, even in young subjects, as such persons might be candidates for Paget's disease. Regarding treatment, he thought that

a few weekly applications of the roentgen rays, each dose consisting of from ⅛ to ½ of a skin-unit, would soon make the lesions disappear.

Dr. W. B. Trimble said he wished to ask two questions before the discussion ceased: First, did any of the members think that the diagnosis of Paget's disease should be considered? Second, what effect would the roentgen ray, if used, have on the milk ducts of the mammary gland?

Dr. G. M. MacKee, replying to Dr. Trimbles question as to the possible bad effects of the roentgen rays on the milk ducts, said the amount used would not be large enough to have any detrimental effect; one unit in divided doses for a period of over a month would have no effect on the glands.

Dr. W. B. Trimble said that the patient had had no radium or roentgen-ray treatment—though several stimulating ointments had been applied. At one time she came very near recovery on a 2 per cent. white precipitate ointment; that proved to be the most effective, after trying various things. Later, however, the condition relapsed and proved more obstinate.

COLLOID MILIUM. Presented by Dr. W. B. Trimble.

A man, aged 58, born in the United States, had had the condition for two years. The patient first noticed a small papule somewhat lighter than the normal skin on the left side of the nose; others gradually appeared, and after a time lesions appeared on the right side. The left side was always more extensively affected. The condition as presented consisted of a group of small yellowish-white papules, lighter than the normal skin, with a translucent appearance. The whole group made a lesion about the size of a five-cent piece. A biopsy confirmed the clinical diagnosis as the section showed the peculiar connective tissue degeneration divided by thin septums.

Dr. G. H. Fox said that these statements, like the arguments in regard to angioma serpiginosum, did not convince him that this case was milium; nor was it any more colloid than lupus would be. He did not care to make a hasty diagnosis, but the cases of colloid milium he had seen were generally disseminated over the nose and cheeks. He had never seen a case with only one group, as in this instance.

Dr. J. E. Lane did not remember whether the presenter of the case had said that a microscopic examination of this lesion had been made. From the appearance alone, he should not have suspected colloid milium. The lesion appeared to be a basal cell epithelioma or possibly a fibroma.

Dr. Howard Fox agreed with Dr. Lane.

Dr. W. J. Highman agreed with Dr. Lane and Dr. Howard Fox. If it were colloid milium it would show colloid matter under the microscope. The microscopic diagnosis submitted must have been made under a misapprehension of what the term signified.

Dr. F. Wise asked whether the microscopic diagnosis was made on a satisfactory specimen and whether the corium presented a colloid degeneration. This lesion could not be called a colloid milium; it might be a colloid degeneration of the skin. A patient had been shown at the Philadelphia meeting by Gilchrist in which almost the entire skin was involved in a colloid degeneration.

Dr. G. M. MacKee said that clinically he would regard the lesion as a nodulo-atrophic type of basal cell epithelioma. At first glance there seemed to be vesicles, but on close inspection and palpation these vesicles were seen to be translucent nodules.

Dr. W. B. Trimble said that when the case was first seen it was slightly different from the condition as presented, though it had not changed materially; the nodules in the group were formerly a little further apart, though from the first they were in one group. The patient had been treated with radium and the mild reaction following the exposures had seemed to have the effect of causing the nodules to coalesce. Before the pathologic examination was made several diagnoses had been considered—epithelioma, lupus vulgaris, etc. Colloid milium had suggested itself on account of one or two small lesions on the opposite wing of the nose; even these were grouped, although each group contained only two or three nodules. The lesions on the right side had been curetted and cauterized, with a beautiful result; the lesion on the left side had been treated with radium, without benefit. Lupus and epithelioma had been definitely ruled out. There was no objection to dropping the term milium, though there was no question of its being a colloid degeneration made up of a group of nodules. The microscopic slide, as he remembered it, was quite similar to the rough sketch that Dr. Highman had drawn.

EPITHELIOMA OF UPPER LIP; SUPERFICIAL FLAT TYPE. Presented by Dr. W. B. Trimble.

A man, aged 35, born in Italy, a factory worker, had a lesion about the size of a silver quarter, situated on the upper lip, just to the right of the median line. It was flat, almost flush with the surrounding skin, slightly infiltrated, and dusky red to brown in color. It was sharply circumscribed with a distinct line of demarcation between the diseased and the healthy skin. The condition was of twelve years' duration. It began as a small macule or flat papule and had slowly though steadily increased in size. Salves had been applied for a number of years without result. The Wassermann reaction was negative.

DISCUSSION

Dr. W. J. Highman said it was difficult to make a clinical diagnosis on such a case. It did not look like the ordinary case of sycosis seen on the lip, and the chronicity of the condition seen in the center of the lesion suggested epithelioma.

Dr. Howard Fox thought the diagnosis lay between sycosis and epithelioma. Either condition could be removed by treatment, but as it was not feasible to perform a biopsy on the lip, the diagnosis would probably remain in doubt.

Dr. J. E. Lane agreed with what Dr. Fox had said. An additional indication of the probability of epithelioma was the fact that on the cheek there was a marked localized keratosis.

Dr. G. M. MacKee thought that the duration of the condition also spoke in favor of epithelioma. It was probably a senile keratosis which was beginning to evolve into epithelioma.

Dr. W. B. Trimble said that no biopsy had been made for he wished to present the case first. He would, however, take a specimen with a small biopsy punch and would report on the case later.

CHRONIC CONGESTION OF THE FACE: FOR DIAGNOSIS. Presented by Dr. W. B. Trimble.

The patient, aged 27, born in New York, a clerical worker, stated that she had had trouble with her face for the past five years. She had not

been subject to constipation but had had attacks of indigestion, with abdominal pain, about once every few weeks. The skin of the face showed a dull red blush, permanent and evidently due to passive venous congestion, with some dilated venules. There were no scaling, no papules and no itching.

DISCUSSION

DR. G. H. FOX was inclined to regard the eruption as rosacea.

DR. J. E. LANE agreed with Dr. Fox that it was a case of acne rosacea in the first stage. Rosacea, frequently or usually began as a transient redness which later became more or less permanent, and the papules, pustules and telangiectasia did not appear until later, or might not appear at all.

DR. W. B. TRIMBLE did not agree with the suggestion about rosacea. There were no acne papules and no scaling; the condition was all over the forehead and neck, with no intervening healthy skin. It seemed to be a chronic congestion. The skin was perfectly smooth. The vessels were dilated, but he did not think it was a case of rosacea.

NAEVUS PIGMENTOSUS UNILATERALIS. Presented by DR. HOWARD FOX.

B. G., a Jewish girl, aged 16, a bookkeeper, had an eruption that had existed, according to her mother's statement, since she was 3 years old. It consisted of pigmented lesions on the right side of the face and neck. On the cheek it consisted of numerous discrete, light brownish-yellow, pin-head sized spots on a fairly normal skin. On the neck the lesions were of the same character, except that they were much darker in color, some almost black, and the intervening skin was light brownish-yellow in color. The lesions were not elevated, and there was no hairy growth. She was being treated by another physician with radium.

GENERALIZED LICHEN PLANUS. Presented by DR. F. WISE.

A little girl, aged 7, from Dr. Fordyce's clinic, presented an almost universal generalized lichen planus. The condition had existed for nine weeks. She had a dermatitis on the face resembling a seborrheic eczema. It was difficult to decide whether or not the condition was a modified lichen planus. When the patient first came under observation the entire body presented the appearance of a dermatitis exfoliativa, together with lichen planus papules.

CASE FOR DIAGNOSIS. Presented by DR. F. WISE.

A woman from Dr. Fordyce's clinic, aged 30, born in Syria, had had the disease for six months. It was apparently a simple case, but was difficult to diagnose. One of the members of the clinic thought the condition was an ordinary purpura; it might have been that or a folliculitis, or a papulonecrotic tuberculid. The diagnosis seemed to rest between the two conditions last mentioned. The patient's husband had been treated for syphilis. The eruption consisted of numerous ordinary follicular papules, deep seated nodules, and purpuric macules scattered over the front and back of both legs. A Wassermann test had been made but the report had not been received.

DISCUSSION

DR. W. J. HIGHMAN suggested that it might be erythema nodosum.

CHEILITIS GLANDULARIS (?). Presented by Dr. F. Wise.

Anna T., a patient from Dr. Fordyce's clinic, presented for diagnosis, aged 21, married and with a history of one miscarriage, presented a lesion on the lower lip of a year's duration which superficially resembled lupus erythematosus; on the buccal mucosa there was an inflammatory condition like ordinary stomatitis. The diagnosis seemed to lie between lupus erythematosus and cheilitis glandularis. The Wassermann test was negative. The lower lip presented a sharply circumscribed, dry, scaly, and somewhat fissured appearance, resembling that seen in lupus erythematosus.

LICHEN NITIDUS. Presented by Dr. W. B. Trimble.

A colored man, aged 26, born in the United States, had had the condition about four months. The eruption consisted of thickly grouped small pin-head sized, whitish-yellow, flat lichenoid papules on the backs of the hands, shaft of the penis and extensor surface of elbows. There were a few scattered papules on the back and ankles. The Wassermann reaction was negative. There were no subjective symptoms.

Biopsy: Section through one of the individual papules showed a sharply defined lesion of the papillary portion of the derma, which had the general appearance of a granuloma. The infiltration consisted of epithelioid cells and smaller mononuclear cells. No giant cells were found in this specimen.

DISCUSSION

Dr. W. J. Highman said it did not look like that variety of lichen to him. The penile lesion and those on the forearms looked like milia, and Dr. Lane had been able to scrape little coagulated white masses out of many of them. Possibly it was a disturbance of the sebaceous follicles of the skin or of the opening of the sweat follicles—in short, a retention cyst due to a hyperkeratosis of the outlet, giving this peculiar picture.

Dr. W. B. Trimble said the usual description of this disease was that the lesions were similar to those of lichen planus, only smaller; they were the color of the general skin; the genitalia were favorite locations; and subjective symptoms were absent. The case under discussion being in a negro, the color sign was lost to a degree. He thought the lesions in the case presented were more widespread than those usually described. No giant cells were found in the specimen studied, though it was a granuloma.

FOLLICULITIS DECALVANS WITH SEBORRHEIC ECZEMA. Presented by Dr. F. Wise.

S. G., aged 38, from Dr. Fordyce's clinic, born in Russia, had had the condition for fourteen years. There was a bald atrophic patch on the scalp which at first was thought to be favus, but later a diagnosis of folliculitis decalvans was made. There was also a seborrheic eczema on the chest. The surface of the bald patch was pale, atrophic, parchment-like and entirely devoid of hair. The outline was irregular. Microscopic search for the achorion was negative.

DISCUSSION

Dr. G. M. MacKee favored the diagnosis of folliculitis decalvans on account of the short duration—four years—and also because of the serpiginous outline

of the cicatrix. The lesion was inactive at the time of presentation, but at intervals pustules would form at the periphery and the disease would extend a little farther.

Dr. G. H. Fox made a diagnosis of preexistent favus. He said that the cicatricial patches of folliculitis decalvans were perfectly smooth, while in this case there were a few wiry or deformed hairs left in the cicatrix, which was quite characteristic of favus.

CHICAGO DERMATOLOGICAL SOCIETY

Regular Monthly Meeting, Nov. 19, 1919

David Lieberthal, M.D., *in the Chair*

A CASE FOR DIAGNOSIS. Presented by Drs. E. L. McEwen and A. W. Stillians.

A negro, aged 28, presented a generalized, dry, papular eruption which extended from the toes to the ears, with only small islands of normal skin. The lesions first appeared about Jan. 1, 1919, as vesicles in the popliteal spaces and spread upward, the ears, head and neck being last involved. These vesicles would dry and disappear, reappearing after about a week. Itching and a sensation of smarting had been present since the onset. The Wassermann reaction on the blood and spinal fluid was negative. Treatment with various ointments and lotions had afforded little relief. Internally he had received sodium bicarbonate, magnesium oxid and atropin; Fowler's solution, and recently thyroid extract in 2 grain doses had been administered three times a day. Here and there on the arms and legs were crusts covering ruptured pustules. Most of the surface of the body was covered by lichenification. Some papules had a central adherent crust, most of them smooth. No angular papules were seen and no involvement of mouth or glans penis.

DISCUSSION

Dr. F. E. Senear had seen the patient at the County Hospital and had made a tentative diagnosis of lichen planus and suggested that a biopsy be made. He afterward doubted that diagnosis but now, with a better light than he had had on previous occasions, he felt that a clinical diagnosis of lichen planus could be made and that the histologic specimen agreed with this.

Dr. Tucker agreed with Dr. Senear.

Dr. W. A. Quinn believed it was a case of lichen planus, although he had not seen much in the colored race. There were no lesions on the mucous membrane, but those on the arm seemed typical.

Dr. M. S. Oliver thought it was a case of lichen planus.

Dr. A. W. Stillians did not agree with the diagnosis of lichen planus. He had not found a typical lichen planus papule and the microscopic section did not seem to him indicative of that disease. The infiltration was not sharply outlined, and there were none of the changes in the epithelium that he would expect to find in that disease.

A CASE FOR DIAGNOSIS. Presented by Drs. E. L. McEwen and A. W. Stillians.

A white male, aged 36, entered Cook County Hospital on November 3, complaining of an itching eruption on the legs and thighs, above the pubis, over the buttocks and in the scalp. The lesions first appeared in 1916 as red blotches over the buttocks and around the arms, later spreading to the other localities. At one time there was considerable weeping; itching had always been severe, especially at night There were many areas of excoriation that were weeping, and some crusting was seen. A few pustular lesions were exhibited. There was a history of gonorrhea and of a chancre seventeen years ago. Wassermann reaction was negative. Over the suprapubic region, both thighs and both legs a fairly profuse eruption of discrete follicular papules occurred, many of them covered by blood crusts. Following a series of autoserum treatments, an eruption of good sized vesicles on the legs and a typical herpetiform patch on the right scapular region had appeared, clearing up shortly thereafter.

DISCUSSION

Dr. Foerster looked on the case as one of infectious eczematoid dermatitis, as reported by Engman and Fordyce.

Dr. O. S. Ormsby thought it was a folliculitis in a skin which was not well cared for, accompanied by a certain amount of keratosis. It was primarily a follicular infection.

Dr. U. J. Wile and Dr. L. C. Pardee agreed with this diagnosis.

Dr. F. E. Senear agreed that the lesions at present were follicular and a good many of them were pustular. He had watched the case for a good many weeks and had found vesicular and bullous lesions on the surface of the thighs. He had felt very much at sea until the man had developed, over the scapula, some lesions that soon became crusted, whereupon he decided that it was a case of dermatitis herpetiformis. The picture at presentation was not as it had been; but there was a great deal of pigmentation, grouping had been present, itching was intense, and there had been frequent recurrences; therefore he felt that it was a dermatitis herpetiformis.

Dr. A. W. Stillians had always felt that the case was one of dermatitis herpetiformis. Most of the time the lesions were follicular but frequently they were pustular. Owing to the intense itching, especially at night, and since the bullous and vesicular lesions had appeared, he thought it would have to be considered an atypical dermatitis herpetiformis.

Dr. Mitchell said that there had been a recent report by Milian on a case of pustular dermatitis herpetiformis. The case had been carefully studied histologically. The blood showed an eosinophilia of 4 per cent. Milian's case was somewhat similar to this one in that the lesions came out in crops. The man had a positive Wassermann reaction, and was given repeated injections of arsphenamin without effect. The case was studied over a long period and the authors satisfied themselves by careful investigation that it was pustular dermatitis herpetiformis, which Duhring always maintained might occur in very rare cases.

GRANULOMA INGUINALE TROPICUM. Presented by DR. A. W. STILLIANS.

A negro, aged 32, a jockey, in 1915 had a lesion on the glans penis that appeared as a small papule; this ruptured and spread around the corona. Six months later a swelling in the left groin was noticed which broke down and ulcerated, and had since been gradually spreading along the inguinal fold. In 1918 a similar swelling and ulceration appeared in the right inguinal region and above the pubis and at about the same time beneath and on the scrotum. At the time of presentation on the glans penis was a granulating sore at the corona which extended almost entirely around. The edges were well defined; the granulating area was raised above the skin and bled easily. Similar sores were present in the folds between the scrotum and thighs and in the inguinal region as well as above the pubis. There was no urethral discharge; Wassermann reaction was negative. There was a history of gonorrhea in 1907 and of a chancre in 1908 with no treatment except local applications. The patient said he felt well and was gaining in weight. Nausea, vomiting, night sweats and gastro-intestinal disturbance were denied. He had had malaria at the age of 8; he had had no other illness.

DISCUSSION

DR. U. J. WILE was not sure what a tropical granuloma of the inguinal region was and did not know whether it was thoroughly understood in the literature except that it was an eruption in the inguinal region which occurred in the warm climates. In this case, owing to the man's poor physique and his race and the fact that he had not been out of this country, Dr. Wile would want to be sure that he did not have tuberculosis before pronouncing it such a rare condition as granuloma inguinale tropicum.

DR. MITCHELL thought it might be interesting to try out the intravenous injections of antimony tartrate in this case.

DR. A. W. STILLIANS said he showed the case because he was still in doubt concerning the diagnosis. Dr. Harris had been very enthusiastic about it. They often had similar cases at the County Hospital, about equally divided among men and women. The ulcers showed hypertrophic granulations and persisted except with vigorous cauterization. Some had been cleaned up by that means. The histology in one case had shown nothing very convincing. A careful search for tuberculosis in this case had revealed nothing indicative of that disease.

FOLLICULITIS DECALVANS AND LICHEN SPINULOSUS. Presented by DR. O. S. ORMSBY.

A man, aged 46, was presented on account of the interesting nature of the disorder as well as because the case resembled three cases that had been reported in England. The first case was reported by Little (Folliculitis Decalvans et Atrophicans, *Brit. J. Dermat.* **27**:183, 1915), another by Dore (Lichen Spinulosus and Folliculitis Decalvans, Ibid., p. 295), and the third by Beatty and Spear (A Case of Folliculitis Decalvans et Lichen Spinulosus, Ibid., p. 331). In the case now presented some of the lesions had been present in the scalp for three years. Three months ago the lesions on the scalp became more active and spread rapidly, and at the same time lesions appeared on the sides of the face, the trunk, arms and forearms. During the past three weeks new lesions had multiplied rapidly. In the scalp on the left side was an area

4.5 by 2 cm. which was completely bald, atrophic and white. According to the patient, this was the earliest lesion. Scattered irregularly over the entire scalp were a large number of pea-sized to fingernail-sized and larger atrophic areas, some of which were erythematous and crust covered. The crusts were dry, yellow and adherent. From their under surface plugs extended which had fitted into the follicles. Some infiltration was present in the crusted areas. Between the grouped atrophic bald spots tufts of hair remained. On the face in front of the ear was a mildly atrophic area in which many keratotic follicles appeared and about which was a brownish pigmentation. On the trunk, both front and back, papules both grouped and discrete were present. Some were millet-seed-sized and reddened. The major portion were smaller, distinctly keratotic, and showed but slight redness. On the flexor surface of the forearms were patches in which spiny papules occurred with practically no inflammatory reaction. Some of these were 5 cm. in diameter and gave a decided nutmeg grater feel to the touch. The patches on the trunk were less abundant and the lesions were more infiltrated. Many of the papules on the trunk presented a brownish tinge. No subjective sensations were complained of.

DISCUSSION

Dr. U. J. Wile thought the case was an erythematous lupus, particularly as the man had atrophic lesions in front of the ear which looked as though he might have had that disease. The lesions on the body did not look at all like those on the scalp, and he thought it probable that the man had a dual condition, such as lichen spinulosum, or a grouped disease on the body which was not destructive, and an intensely destructive disease of the scalp. He believed that two conditions were present.

Dr. F. E. Senear was particularly interested in the case because he had a similar one under observation. His patient was a girl of about 22 years, who had had the condition for ten or twelve years. It began with a process in the scalp with some follicular changes; hence the case was follicular decalvans and not pseudopelade. When he first saw the patient the condition looked like pseudopelade, and on the body she had an eruption which was in every way similar to this one except in distribution. The lesions were situated over the scapulae and over the chest, with scattered lesions elsewhere on the body. The same grouping and same lichen spinulosus characteristics were present. Some of the lesions showed very definitely as comedones, and by squeezing a comedo could be expressed. He had looked up the literature on the subject and these eruptions in association with folliculitis decalvans and pseudopelade he thought were very interesting, because in addition to cases like the one exhibited, there had been cases presenting a picture of folliculitis decalvans on the body. Many years ago Arnozan described a case occurring on the body of a very hairy individual and stated that if it had occurred on the scalp, he would have had no hesitancy in diagnosing it as folliculitis decalvans. He considered Dr Ormsby's case one of folliculitis decalvans of the scalp and lichen spinulosus of the body. As to the scalp lesions in the case under his observation, Dr. Harris had considered follicular lupus erythematosus as a possible diagnosis, but he was unable to see any resemblance.

Dr. A. W. Stillians said he could not see a lupus erythematosus in the patient referred to by Dr. Senear, and he thought Dr. Ormsby's patient was a close parallel.

Dr. W. A. Quinn thought it was a case of folliculitis decalvans and not of lupus erythematosus.

DR. O. S. ORMSBY said he first saw the patient three days before. He was interested to learn that Dr. Senear had a similar case, as that would make at least five of a type that resembled each other. In the first case shown by Little there was marked involvement of the axillae, which had not been present in the subsequent cases. It was interesting to know that in all the cases the scalp condition had existed for many years prior to the development of the lesions on the trunk, having been present for ten years in two instances. He agreed with Dr. Wile that two processes were present. Lichen spinulosus was just as definite a disease as lichen planus, and the lesions in this case were of the type seen in lichen spinulosus as it occurs commonly in children about the neck and upper part of the body. The connection between folliculitis decalvans and lichen spinulosus was difficult to explain.

An histologic examination should be made in these cases to determine their nature. In view of the inflammatory condition in the scalp described by the patient and the present indications of this condition, folliculitis decalvans was the most probable diagnosis. Pseudopelade is always noninflammatory, the first evidence of the disease being the atrophic patches.

LOCALIZED HYPERIDROSIS. Presented by DRS. W. A. PUSEY and F. E. SENEAR.

A white girl, aged 21, presented a lesion on the extensor surface of the right arm and hand. This lesion was an irregularly outlined but sharply defined patch of sodden skin about 5 inches long, whose surface was covered with profuse and rapidly forming perspiration. This lesion began at the age of 11 as a spot about the size of a dollar, and since that time had steadily increased. The sweating was not constant, was more profuse during the day than at night, and was increased by warmth and friction. There was no history of seasonal variation, and there had been periods of freedom lasting from one week to six months. She had been treated with various salves and liquids. There was marked conjunctival and pharyngeal anesthesia, and friends reported that she was nervous and easily excited.

DISCUSSION

DR. D. LIEBERTHAL said he had a patient about 32 years old who was suffering from hyperhidrosis confined to the right axilla. He was strongly inclined to consider the condition a stigma of hysteria.

DR. O. S. ORMSBY had seen a similar case some years ago, and as he remembered the involved area was on the forearm in about the same location. It was localized asymmetrically, and he had no idea what could produce it. Sutton had reported one case in which the back was involved.

DR. F. E. SENEAR thought the patient showed some neurotic symptoms. Aluminum chlorid (25 per cent. solution) had seemed to give very good results where other things had failed. It had not cured the girl, but it had reduced the sweating very markedly and she had been free from this condition for some time.

A CASE FOR DIAGNOSIS. Presented by DR. J. WELFELD (by invitation).

A Russian housewife, aged 45, the mother of six healthy children, six years before had an eruption over the extensor surfaces of the elbows, chest, scalp and fingers. This eruption healed in the spring, leaving scars, and reappeared each fall. Three years ago the cheeks began to enlarge and exhibited a

bluish-red color; this was accompanied by enlargement of the cervical glands. This facial involvement also disappeared each spring to reappear in the fall. The cheeks were firm and infiltrated. The arms, chest and neck showed much scarring and there were numerous nodular and nodulopustular lesions scattered over the chest, elbows and dorsal surfaces of the fingers. There were no subjective symptoms except pain caused by the lesions of the fingers. The Wassermann reaction was +++.

DISCUSSION

DR. FOERSTER was under the impression that the case was tuberculous in character, probably a nodular tuberculosis of the hypoderm, described by Wende.

DR. D. LIEBERTHAL said that he saw a somewhat similar case several years ago; he thought these cases would fit in the group of Hutchinson's chilblain lupus. He had demonstrated before this Society a case of erythema induratum with tuberculids on the fingers a year ago and in that case the lesions disappeared almost completely in the spring to reappear in cold weather.

HYPERPIGMENTATION. Presented by DRS. O. S. ORMSBY and MITCHELL.

A man, aged 40, presented a disorder which had been present for nine months. The family history was negative; past personal history showed that there had been attacks of indigestion for several years. Three years before a diagnosis of duodenal ulcer was made, since which time large doses of sodium bicarbonate had been taken, as much as 2 drams daily. The stomach condition had shown improvement during the past few weeks.

In February, 1919, a dark discoloration was noted on the face. Shortly afterward a similar condition was detected in other areas. The regions involved at the time of presentation were the face, particularly the upper lip and chin, the entire neck, the axillary spaces, the genitocrural region, the internal surfaces of the thighs, the umbilical region and the flexor aspects of the elbows and knees. The chief change was a pigmentation of bluish-black color. The last two areas showed the least involvement. The sun's rays apparently exaggerated the condition about the neck during the summer, but the most marked areas now present were the axillae and the umbilical region which were not exposed to this influence. There was possibly a slight exaggeration in the lines of the skin in the axillae. No changes were noted elsewhere. The mucous membranes were free.

The histologic section showed a large number of chromatophores both deeply and superficially situated. The pigment cells were of varying shapes. There did not seem to be any loose pigment deposited in any place. The epidermis showed practically no change.

DISCUSSION

DR. U. J. WILE thought every one would agree that the diagnosis of the underlying condition which was producing the pigment was extremely difficult at the present stage of the disease. The thing that struck him most forcibly about the case was the marked resemblance to acanthosis nigricans. The neck, the genitalia and the region around the umbilicus were the sites of election for this disease, but there was no acanthosis in the case presented, and it would be impossible to suggest a diagnosis of acanthosis nigricans in the absence of such thickening.

Another suggestive point was the slightly lowered systolic blood pressure, 118, which might mean that this hyperpigmentation, even though it be defi-

nitely symmetrical and not universal, might perhaps be a manifestation of a suprarenal disease. He felt that the case would have to be watched and the diagnosis deferred. The history of duodenal ulcer was suggestive as bearing on the possibility of an acanthosis nigricans associated with malignant disease. He was not sure in his own mind but that some cases of acanthosis nigricans had started with pigment instead of thickening. In the histologic picture of this case, moreover, the pigment was not distributed as it is in that disorder.

He asked whether the patient had been under observation in bed for any length of time with a view to determining whether there was any fever, and whether his general health had suffered.

Dr. F. E. Senear stated that they had seen the patient two or three weeks previously and had arrived at the same conclusion that Dr. Wile had brought out.

Dr. Strong said he could speak only as a histologist. He was struck at first with the color, which suggested a corium pigmentation and examination proved that there were only traces of pigment in the epidermis but an unusual number of melanophores in the corium. The pigment consisted of granules (apparently melanin) which, while irregular in size, were similar in shape. A test made for iron gave a negative result. The color was due to the fact that there were a number of unpigmented epidermal cells in front of the pigmentation and where that occurred there was always a bluish color. He thought this was of no interest except as a diagnostic sign.

Dr. O. S. Ormsby said the chief interest the patient had in his case was in regard to the question of acanthosis nigricans. While he believed the chances were against the development of this disorder in this instance, the matter could not be entirely settled at present There were some interesting features that should be noted. A duodenal ulcer had been under treatment for three years. In a case of acanthosis nigricans reported by Frick, a duodenal ulcer occurred, on the perforation of which the patient died. There apparently was no malignant complication in that case. In another case reported by Markley an ulcer had been present. Operation revealed nothing in the abdominal cavity in that case, but at a later date there was glandular involvement in the neck and a malignant growth was demonstrated in the pulmonary cavity. The reason for the production of this peculiar pigmentation and the peculiar growths in acanthosis nigricans was not known, and it was just possible that if these serious changes are produced by a malignant growth in the abdomen, that irritation from an ulcer might induct a less marked disorder exhibited only as pigmentation. In this case the urine was being examined for pigment and everything possible was being done to demonstrate the presence or absence of derangement of the suprarenals or other organs.

Dr. Mitchell asked if there was any association with tanning.

Dr. O. S. Ormsby thought the sun had something to do with the color, because in the middle of the back of the neck was a clearer area where the sun had not reached it quite so much.

The Patient stated that he felt better this fall than he did in the early spring or during the summer. He had held his weight, his physical condition had been quite good and he had been able to do gymnasium work three times a week. The color seemed to be accentuated during the summer, but the color always fluctuated, some days being much darker than on others.

Dr. D. Lieberthal thought they should be exceedingly guarded about putting down a diagnosis of acanthosis nigricans, and considered Dr. Wile's remarks apropos. He had seen many outspoken cases and was convinced that this was not an acanthosis nigricans, as there was no definite papillary hypertrophy. He thought the patient was justified in feeling a little more optimistic about his case than he had been inclined to feel before the discussion.

A CASE OF TUBERCULOSIS OF THE SKIN. Presented by Dr. D. Lieberthal.

A child, aged 4, had a lesion in the zygomatic region in front of the left ear. It began to develop nine months before. While it was gradually progressing upward, it was healing in the lower part.

The lesion was a superficial ulceration of bean-size with scant seropurulent secretion and irregular borders. The lower part was adjacent to an irregular distorted scar. The patient was in perfect condition of health otherwise. The Wassermann and von Pirquet reactions were negative. Mild roentgen-ray applications were instituted.

DISCUSSION

Dr. U. J. Wile thought it was a tuberculous lesion.

PSEUDOPELADE. Presented by Dr. A. W. Stillians.

A Polish woman, aged 24, at the age of 12 noticed a bald spot at the vertex. Since then other spots had gradually appeared. At the vertex was a depressed scar ⅝ inch in diameter and below it and to the right six other scars, the larger depressed, the small ones about ¼ inch in diameter, white and atrophic. Near the border of the largest scar were several pale papules about ⅛ inch in diameter and slightly elevated. The hair was apparently healthy except that many of the long hairs showed rough sections where the hair was twisted and bent.

INFECTIOUS ECZEMATOID DERMATITIS. Presented by Dr. E. P. Zeisler.

A man, aged 26, had an eruption which had been present since May, 1919. Coming home from France he was treated for scabies with sulphur ointment and about that time he received a cut on the hand following which the eruption appeared. The lesions on the brows had persisted since then and consisted at present of circumscribed patches resembling pustular eczema. Syphilis had been present since 1912 and recent Wassermann tests had been positive. The case was presented as an example of infectious eczematoid dermatitis.

DISCUSSION

Dr. F. E. Senear thought it was an infectious eczematoid dermatitis.

A CASE FOR DIAGNOSIS. Presented by Dr. F. E. Senear.

A boy, aged 11, for the past four years had had brownish spots on the body. The first one appeared beneath the left axilla, then elsewhere on the trunk. They had remained unchanged in appearance since the beginning, although they had increased slowly in size for three years. Slight itching was present in the summer time. At the time of presentation over the trunk were several round or oval, dark brown pigmented patches. They were not elevated and there was no scaling and no infiltration.

BLASTOMYCOSIS. Presented by Dr. D. Lieberthal.

A man, aged 63, a cabinet maker, with a negative family and personal history, about four years ago had a small warty growth on the callous skin of the dorsum of the first phalanx of the left thumb. It was treated by various methods without improvement. About a year ago the warty condition started to spread downward over the back of the hand. There were no subjective sensations. At the time of presentation there was a plaque on the dorsum of the left hand which extended over the first phalanx of the thumb, the ulnar part of the metacarpal region and the metacarpal region of the index finger. The outlines of this plaque were round, the center smooth, and the periphery showed warty excrescences on a bluish base; the latter was surrounded by a band of pink, but otherwise normal, skin. Between the warty growths was found from time to time, a pustule which contained the fungus.

A CASE FOR DIAGNOSIS. Presented by Dr. A. W. Stillians.

A woman, aged 55, presented a varicose ulcer on the right ankle which had been present for many years. She had recently returned with a recurrent ulcer with a peculiar, nodular appearance in the surrounding skin.

DISCUSSION

Dr. F. E. Senear thought the change was simply a nodular hypertrophy not infrequently seen in a varicose extremity.

Dr. U. J. Wile agreed with Dr. Senear.

Dr. A. W. Stillians said he once had a case very much like this which turned out to be a beginning Kaposi sarcoma.

A CASE FOR DIAGNOSIS. Presented by Dr. A. W. Stillians.

A Hollander, aged 44, a mechanic, first noticed a small brown spot on the inner side of the right leg three years ago. This had gradually spread, without any subjective symptoms. Two weeks before presentation a blister appeared below the large area, which disappeared leaving a small spot. A pea-sized spot on the left leg had been present for several months. Examination showed an area about 5 by 9 cm. about the middle of the inner side of the right leg; this spot was brown in the center, deep brownish red at the upper and lower parts, was level with the surrounding area and covered with a thin, easily wrinkled skin. About this many pinhead-sized brownish-red macules were situated, which were brown under the diascope. Below this large patch a similar spot 1 cm. in diameter was located, and at the center of the inner side of the left leg a similar lesion 0.5 cm. in diameter.

DISCUSSION

Dr. O. S. Ormsby said, in reply to the criticism that Schamberg's disease was not an entity, that it was more strongly intrenched now than ever before and was accepted as an entity all over the world. It was, however, a subacute, inflammatory process which was entirely different from this case. He believed this was a pigmented area due to chronic inflammation.

Dr. A. W. Stillians said that of the three lesions the one below the original one on the right leg was the most recent; it had been of very short duration and had shown no previous inflammation, except that the patient said it began as a blister. He thought Schamberg's disease the most probable diagnosis. The follicular lesions beyond the area of confluence suggested the primary lesions of that disease.

PHOTOGRAPH OF ORIENTAL SORE. Presented by Dr. J. F. Waugh.

A woman, aged 45, had a lesion on the chin one year before presentation; it looked like the bite of an insect. This small, slightly elevated, reddish spot gradually enlarged to dime-size, and seropurulent discharge was present for several weeks. Similar lesions developed about the same time on the extensor surface of the right forearm and on the cheek. When the patient was first seen the latter lesion was reddened, infiltrated, dry and slightly scaling. An area the size of a silver dollar was markedly indurated. Under radiotherapy by the divided dose method improvement was noticeable in two weeks, and in two months the induration and most of the redness had entirely disappeared.

CHICAGO DERMATOLOGICAL SOCIETY

Regular Meeting, Dec. 17, 1919

David Lieberthal, M.D., *President*

PHAGEDENIC ULCER. Presented by Drs. O. S. Ormsby and Mitchell.

A girl, aged 13, was first seen by Dr. Mitchell in 1917 at the dispensary, where she and her mother were under treatment for syphilis. The mother had marked signs of late syphilis, which included gummas and scars and a positive Wassermann reaction. The patient exhibited no signs of syphilis other than a positive Wassermann reaction. At that time a hard mass was present in the submaxillary region which was uninfluenced by arsphenamin treatment. The blood count showed 8,400 leukocytes and hemoglobin 85 per cent. Several months before presentation she was seen by Dr. Ormsby, at which time the ulcer now present was noted. This developed during the time she was under treatment for syphilis.

The ulcer occupied the entire side of the face, half of the upper lip, half of the chin, and extended over the neck to near the clavicle. It was deeply situated and destructive. It spread peripherally, the edge was elevated, bluish-red, perforated with sinuses and actively breaking down. Treatment had no effect on the ulcer until roentgen rays and the quartz lamp were employed, when healing began. In spite of treatment, however, the ulcer continued to advance.

DISCUSSION

Dr. O. H. Foerster thought the result of treatment was remarkable, showing what can be accomplished by persistent, well directed therapeutic effort. The history indicates that it must have been an extraordinary type of tuberculosis, with a breaking down of all the tissues, and probably a secondary infection to account for the tremendous ulcer. He congratulated Dr. Ormsby on the excellent result he had obtained. It reminded him of a case seen at Camp Gordon several months before, which was diagnosed as sarcoma of the vas. A very large ulcer developed which took off most of the pubic region and the entire scrotum in spite of treatment. The etiology of the condition was never definitely established.

Dr. O. S. Ormsby thought the occurrence of such an ulcer was unusual and the fact that both the patient and her mother had syphilis was a point of added interest. Furthermore, antisyphilitic treatment had no effect on the

ulcer. He had seen two similar ulcers, both of which occurred in men and were situated on the abdomen. These were gangrenous ulcers due to pus infection, spread peripherally, had the same elevated margin and each followed a definite infective process. The ulcer was not a noma but resembled that disorder.

DR. J. ZEISLER asked why it was not a noma.

DR. O. S. ORMSBY said that noma occurred on the mucous membrane and that ruled it out in this case. He felt that gangrene occurring in a syphilitic or tuberculous patient accounted for everything in the case.

NONPIGMENTED LINEAR NEVUS. Presented by DR. A. W. STILLIANS.

An American woman, aged 29, married, according to her father, had since early childhood a linear elevation extending from the right corner of the mouth downward and outward, which was more noticeable at some times than at others. The lesion was from 1 to 3 mm. in width and extended from 1.5 cm. below the right angle of the mouth downward and outward 8 cm. It was made up of small, soft papules, many of them follicular, confluent at the center of the line, discrete at the ends and slightly pinker than the normal skin. There were no subjective symptoms. Below the left angle of the mouth was a pigmented nevus 2.5 by 0.5 cm., not elevated, which extended across the jaw.

DISCUSSION

DR. A. W. STILLIANS thought the case was particularly interesting because of the fact that a pigmented nevus was present in about the same location on the other side, extending downward from the corner of the mouth.

LUPUS ERYTHEMATOSUS. Presented by DR. A. W. STILLIANS.

A married woman, aged 29, had always been well until she was operated on for pus tubes in 1916. Since then she had experienced frequent pain in the right side. One uncle died of tuberculosis; the family history otherwise was negative. In January, 1919, a pimple appeared on her right ala nasi and slowly enlarged. During the summer when the patient was tanned it became smaller, but recurred in the fall.

The lesion was a soft, elevated nodule, 2 by 1 cm., situated on the right ala nasi; it was dark red, fading on pressure. Very small, adherent scales were present in a few places.

DISCUSSION

DR. E. L. MCEWEN stated that a patient in the County Hospital had been treated with quinin and iodin with excellent results.

DR. W. A. PUSEY thought there was some difficulty about the diagnosis. The patient had some indolent, inflammatory lesions on the side of the nose. If Dr. Stillians had watched the case for some time he was willing to accept the diagnosis of lupus erythematosus, but he would not make that diagnosis from a cursory examination. The few rather prominent nodules on the tip of the nose might confuse the picture.

DR. A. W. STILLIANS stated that he had used Cutler's fluid with good effect on the patient at the County Hospital. This case was hard to diagnose because there was no central scarring. He thought the fact that she improved so much during the summer when she was tanned might explain the good effect of actinotherapy.

SARCOID. Presented by Dr. O. S. Ormsby.

A woman, aged 49, was presented before the Society in January, 1919 (J. Cutan. Dis. **37**:543 [Aug.] 1919). The disorder had advanced considerably since that time. The nodules and plaques had enlarged and now occupied more of the surface on the cheeks below the eyes. The nose was broadened and thickened and had pronounced, hard, immovable masses over the nasal bones. On the right cheek there was a large, deep plaque formed of nodules. The skin over both cheeks was becoming telangiectatic and bluish-red, and there was prominent edema of the lower eyelids.

The histologic section showed the process to be deeply situated where groups of cells, including giant cells, were seen enclosed in a connective-tissue capsule. A full report of this case is to be made.

DISCUSSION

Dr. W. A. Pusey thought the interesting point about the case was the marked improvement under arsphenamin treatment.

Dr. J. Zeisler asked Dr. Ormsby what his opinion was regarding the relation of sarcoid to syphilis.

Dr. O. S. Ormsby said there was no question about the immediate improvement of this patient under treatment with arsphenamin. He believed these cases improved slowly under arsenic and that the best method of treatment was the long-continued administration of this drug. This patient had taken the Asiatic pill and Fowler's solution for a year without benefit, and it was for this reason that she had recently been given four injections of arsphenamin, which produced some improvement. In his opinion some cases of sarcoid were manifestations of syphilis, and it was this type that had responded to antisyphilitic treatment. Others were of tuberculous origin.

Dr. A. W. Stillians stated that a patient whom he had exhibited several months ago, in whom the appearance was that of a deep sarcoid, and in whom the histologic examination gave the same findings, had cleared up under mercury and iodid. He asked whether Dr. Ormsby thought that if the sarcoids cleared up under arsphenamin treatment it was an indication that they were syphilitic.

Dr. O. S. Ormsby replied that he believed the cases that had been reported as sarcoid and that had cleared up under arsphenamin were syphilitic.

CHANCRE OF CHIN. Presented by Dr. E. W. Potthoff.

A man, aged 46, had had the condition for nine weeks. He was first seen by Dr. Potthoff two weeks before, at which time there was an ulcer on the chin and a pronounced involvement of the submental glands. There was also a slight pigmentation on the forehead. The Wassermann reaction was +++. He had received three injections of arsphenamin and two of bichlorid with marked improvement. There was no history of exposure; the patient had always shaved himself. When first seen he had scabies, which ran into the other lesion.

Feb. 2, 1920: The condition on the chin had cleared up under specific treatment. The patient was still receiving treatment.

DISCUSSION

Dr. O. S. Ormsby asked how long the primary lesion had been present, and how long it had been since the arsphenamin had been given.

Dr. E. W. Potthoff stated that the lesion had been present for nine weeks as a large mass on the chin. There had recently been some improvement. His first arsphenamin treatment had been given ten days previously.

Dr. O. S. Ormsby thought there might be some other process in addition to syphilis as the lesions of the latter usually clear up in from nine to fourteen days after arsphenamin treatment. Perhaps a pus infection had been added to the syphilitic lesion.

CASE FOR DIAGNOSIS. Presented by Dr. M. S. Oliver.

A dentist, aged 34, presented an eruption of the scalp which extended on to the forehead. This condition had been present for several years, never entirely clearing up, although antiseptic ointments had given temporary relief.

DISCUSSION

Dr. J. Zeisler said that this was a patient of his father's several years ago, and although there were several negative Wassermann tests, he had made a diagnosis of syphilis. There were lesions on the nails at that time which cleared up under antisyphilitic treatment. Whether he had had syphilis or not he did not know for he had not seen the patient when the lesions on the nails were present. Dr. Zeisler's own impression was that the lesions on the scalp and forehead were acne varioliformis. He thought the scars on the scalp were remarkably uniform in size for scratch marks.

Dr. W. A. Quinn thought the scars on the forehead were strongly suggestive of syphilitic trouble. He might have a decalvans which was still active.

Dr. F. E. Senear was impressed with the case as acne varioliformis and thought Dr. Oliver's description fitted that condition. The eruption did not look like folliculitis decalvans to him, and he had never seen that condition occur with such lesions as were present in this case.

Dr. W. A. Pusey asked if there were any lesions elsewhere.

Dr. M. S. Oliver replied that all the active lesions were situated in the scalp.

Dr. W. A. Pusey thought one saw a good many cases with excoriations like those in the scalp and there might be excoriations on the bald skin also. Perhaps the man had an oily scalp, perhaps a seborrheic dermatitis, an itchy scalp and perhaps he was a nervous dentist. He was not at all sure that the condition was not one of excoriations in an itchy scalp, like an excoriated acne. He had recently seen a case of this kind in a young girl. She had absolute anesthesia of the larynx and conjunctiva and excoriated lesions. He offered the diagnosis of excoriations of the scalp due to scratching.

Dr. O. H. Foerster looked on the disease as acne varioliformis and thought the scar of the former lesion on the nose and the scars in the temporofrontal region and just above the ear were of the kind found in that disease—punched out, round and very slightly depressed.

Dr. O. S. Ormsby had seen a number of cases that had similar lesions in the scalp that were due to the causes mentioned by Dr. Pusey. Dr. McEwen had shown such a case some years ago. He thought the lesions on the temple suggested acne varioliformis.

Dr. A. W. Stillians considered it an acne varioliformis because of the scars. He had had two cases such as Dr. Ormsby mentioned with superficial pustules that were sometimes quite profuse but never left any scars. He had examined one recently and had found a pure culture of the bottle bacillus. He thought the lesions were not caused by scratching but by pustules that ruptured

easily. These were the common punctate lesions with crusting, occurring now and then in cases of dandruff.

Dr. D. Lieberthal asked whether any active lesions had appeared on the forehead recently. He saw the patient five or six years before and thought no lesions had appeared on the forehead since that time. Undoubtedly the lesions on the scalp were entirely different from those on the forehead. It was sufficient for a staphylococcus to cause pustules, and they were often seen in the scalp in a seborrheic condition.

Dr. M. S. Oliver stated that he had first seen the patient four or five days before. The patient stated that the lesions appeared in groups; they were distinct papulopustules and continually recurred, with or without treatment. There were very few subjective symptoms, but the patient could not help feeling that the lesions were present. The condition impressed Dr. Oliver as being acne varioliformis.

CASE FOR DIAGNOSIS. Presented by Dr. E. W. Potthoff.

A man, aged 39, who was seen for the first time on the day of presentation, presented a lesion of the lower eyelid which he said had been present for several years. He had just recovered from an operation for tuberculous epididymitis and there was said to be a condition in the lung which was suggestive of tuberculosis.

The lesion was elevated and hard, which suggested an epithelioma, but with the tuberculous history it was necessary to make a differential diagnosis.

DISCUSSION

Dr. W. A. Pusey said that if a diagnosis of epithelioma had been conclusively made he would have agreed to it, but it did not look like any epithelioma of the lower lid that he had ever seen. He thought it might very well be a tuberculous ulcer, or it might possibly be a destruction of the lid from infection from a simple pus organism. He did not think it was blastomycosis.

Dr. Mitchell said that the pearly border and sharply demarcated line led him to believe that the lesion was an epithelioma such as was occasionally seen.

Dr. O. S. Ormsby said he had under observation at the present time two cases of epithelioma of the lower lid which closely resembled the one under discussion. In one of these cases the destruction had been more severe. Both presented peculiar semitranslucent nodules such as were seen in this case, and the diagnosis of epithelioma was confirmed by long observation. He believed in the present case the lesion was an epithelioma, but the possibility of tuberculosis was to be considered, although he had never seen tuberculosis of the lower lid.

Dr. F. E. Senear thought the case looked like tuberculosis more than any other condition. He thought an epithelioma involving the conjunctival tissue would have progressed much more rapidly than had the lesion in this case.

Dr. E. W. Potthoff stated that the patient had had tuberculous epididymitis and some lung trouble. The question of blastomycosis had come up because cases of that disorder were seen which looked something like this. The healed lesion made one think of a blastomycosis at the corner of the eye which

had failed to heal along the margin of the lid. He would try to get a histologic section.

ACNE. Presented by DR. J. ZEISLER.

A boy, aged 16, a shipping clerk, had a pustular eruption on the back, chest and face, which had been present for about a year and resisted treatment.

He was presented so as to show an abnormally severe type of acne in an anemic boy.

DISCUSSION

DR. W. A. PUSEY thought the case was well worth showing because of its extraordinary intensity. He thought there were two elements in the case—the abnormal development of the sebaceous glands and more or less cachexia.

DR. E. L. MCEWEN had never seen so severe a case and thought perhaps there might be a slight goiter, or a thyroid factor prolonging the disorder.

DR. W. A. QUINN thought it was unusual to see a case of that severity in a boy of 16 years. The amount of destruction was very rapid.

DR. A. W. STILLIANS asked what part the thyroid might play in such a case.

DR. E. L. MCEWEN said in reply to Dr. Stillians' question that in a person with such a severe disorder there must be a great deficiency in resistance to ordinary pus organisms. What caused this loss of resistance was the question and he thought that in dealing with it one should not fail to consider the ductless glands. It was merely a suggestion—he had no theories to formulate.

DR. J. ZEISLER asked for suggestions as to treatment.

DR. D. LIEBERTHAL said he had a similar case in a boy of 14 years who was one of a series of patients with this condition that he had seen. Some of the cases did not impress him as being pure acne. The cases were refractory to any form of treatment and simulated to some degree an actinomycosis. He did not offer this as a diagnosis but thought there must be something definite there. He suggested that the case be watched clinically and the contents of the lesions ascertained if possible. He put his patient on iodid of potassium in increasing doses, because he thought there might be an etiologic factor similar to that of actinomycosis, and he got wonderful results.

DR. O. S. ORMSBY thought that quinin might be of benefit in the case.

PERSISTENT ECZEMA. Presented by DR. D. LIEBERTHAL.

A young girl, who had been presented before the Society on several occasions within the last three years, had a copious eruption of bulbous lesions and oozing surfaces on scalp, neck, ears, armpits and groins and to a lesser degree on various other parts of the body. When she came under Dr. Lieberthal's care at the Michael Reese Hospital about ten months before the same symptoms were noted. For months she was seen by him every few days, but no improvement was observed. He decided then to see her daily and to ascertain whether the treatment was carried out. Under plain aluminum acetate solution and Lassar's paste the skin of the patient cleared up completely within sixty days. The patient had been well since about August 1, but a few days before presentation she called again complaining of swelling and itching of the pubes.

DISCUSSION

DR. E. L. MCEWEN thought the result secured in this case was remarkable because the patient had been in a very bad condition at the County Hospital.

The case had been placed in the group of pustular seborrheic dermatosis and had proved very resistant to treatment. To have cleared her skin and scalp as completely as it was cleared was a wonderful result, but he thought the condition was now recurring in the pubic region.

Dr. D. Lieberthal said the trouble had recurred on the pubes three weeks previously, but under the same treatment which was administered at the Michael Reese Hospital it improved rapidly.

Dr. W. A. Quinn thought the aluminate acetate was the successful agent in the case, but Dr. Stillians said he had used it at the County Hospital with little or no effect.

Dr. A. W. Stillians stated that they did not get much effect from any treatment at the County Hospital, although they had tried many forms.

Dr. D. Lieberthal presented the case with no intention of criticism of the treatment administered by her former physicians, but in order to show how even simple measures would produce results if carried out persistently and according to instructions.

MACULAR ATROPHY OF SKIN. Presented by Dr. A. W. Stillians.

An American woman, aged 27 years, had first noticed a grayish spot about the size of a five-cent piece on her right knee eight and a half years before. Other spots gradually appeared under the left breast, on the right elbow, on the left thumb and in various other places. Before being operated on for an appendicitis and tubal pregnancy in May, 1918, she had been much less stout than at the time of presentation. She had been married eight years and had one child, aged 6. There was a history of two miscarriages, late in pregnancy, after the birth of this child, and the operation above noted.

The patient was quite stout and of rather pasty complexion. On the scapular region were three round macules 1½ to 2 cm. in diameter, light brown and slightly depressed. These were the most recent lesions. In the lumbar region, buttocks, hips and thighs, were many similar lesions ranging from less than 1 cm. to 7 cm. in length and varying in width. They were oval, linear or irregular in shape, dark brown, more or less depressed and sharply defined. Only one showed infiltration, and that was small and scar-like, in the center of the most depressed lesion on the left lower lumbar region, near a linear scar 2.5 by 0.5 cm. Several of the older lesions about the knees had a peculiar watered silk sheen. Urine and blood were normal, except for a weakly positive Wassermann reaction on the blood.

DISCUSSION

Dr. O. H. Foerster said the lesions on the back were only slightly atrophic and slightly reddened, with a peculiar pigskin-like appearance which to him at once suggested scleroderma. When the lesions on the thighs and knees were seen the case was quite clearly scleroderma.

Dr. W. A. Quinn considered the case very interesting. The lesions on the back did not feel like scleroderma. He thought from those lesions alone one could not make the diagnosis, but the leg lesions made the case definite.

Dr. E. W. Potthoff thought it was scleroderma.

Dr. O. S. Ormsby thought the atrophic stage of the case was instituted earlier than any case he had seen, but believed this atrophy could be accounted for entirely by the local sclerodermatous process. It was not idiopathic or linear or macular.

Dr. W. A. Pusey considered the case very interesting. The lesions on the knees and thighs gave the picture of scleroderma, but without those he would not know what to call it. He thought the reason the lesions were so confusing was because the girl had deep layers of fat and the lesions of morphea were sunk down in it and confused the picture. Until they reached the legs where the flesh was more tense the case was not at all clear.

Dr. A. W. Stillians thought the lesions on the legs looked like scleroderma, but he did not think he could make a diagnosis of scleroderma without any induration or thickening. The latest lesions on the back were not thickened.

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